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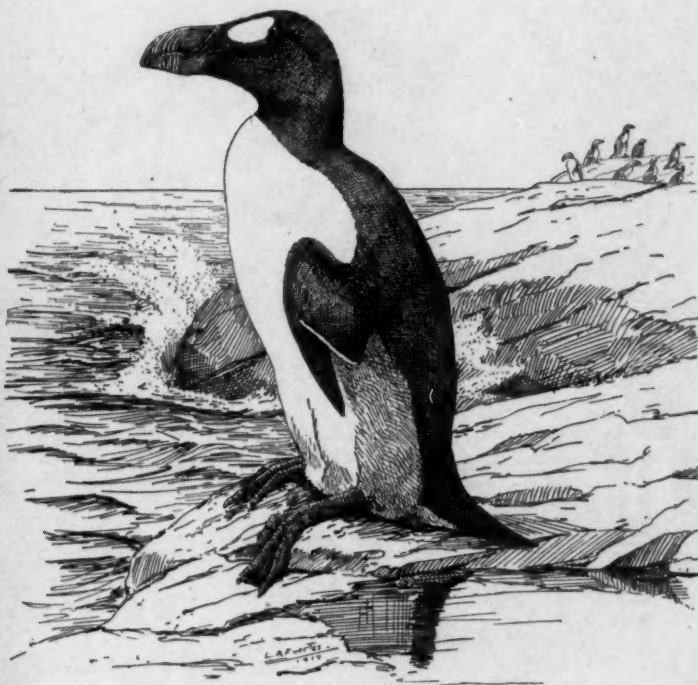
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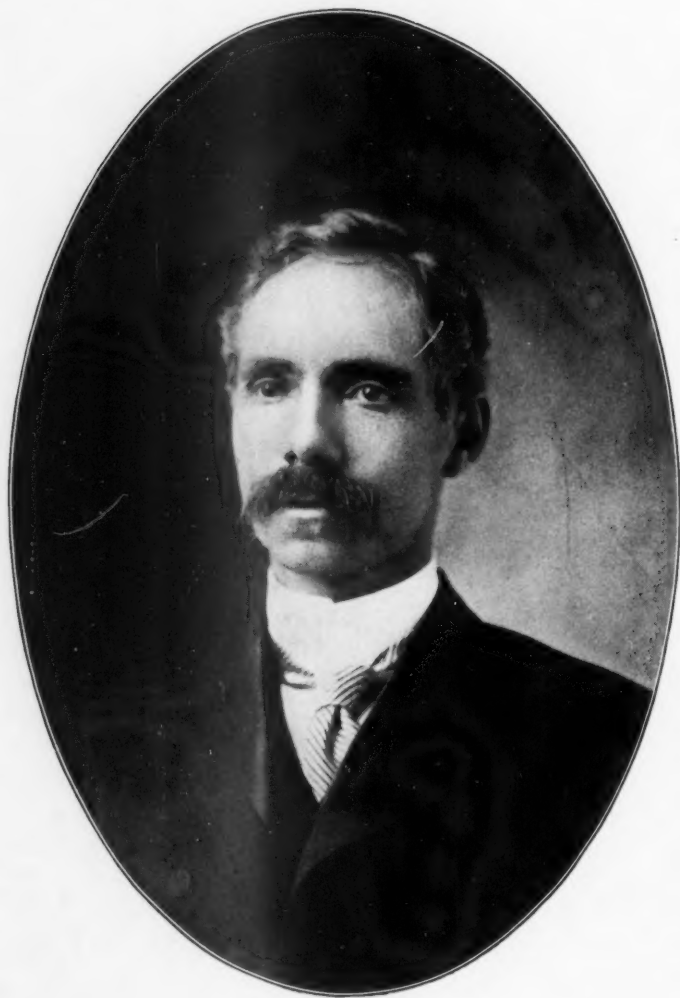
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Yours truly,
Wells W. Cooke.

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. XXXIV.

APRIL, 1917.

No. 2.

IN MEMORIAM: WELLS WOODBRIDGE COOKE.¹

Born Jan. 25, 1858 — Died March 30, 1916.

BY T. S. PALMER.

Plate II.

MEMBERS of the American Ornithologists' Union who are interested in migration are familiar with the contributions which Middendorff of Russia, Palmén of Finland, Gätke of Heligoland, Harvie Brown of Scotland, and other European ornithologists have made to that puzzling branch of ornithology which deals with the seasonal movements of birds. And they will not hesitate to include among the workers of the first rank in this field one of their own number who year after year labored patiently, persistently, and enthusiastically to raise the veil of mystery enveloping the habits of some of our common birds. In considering migration says Prof. Alfred Newton we "indeed are brought face to face with perhaps the greatest mystery which the whole animal kingdom presents. . . . The flow and ebb of the feathered tide has been sung by poets and discussed by philosophers, has given rise to proverbs and entered into popular superstitions, and yet we must say of it still that our 'ignorance is immense!'"² America's contri-

¹ Address delivered at the thirty-fourth Stated Meeting of the American Ornithologists' Union, Philadelphia, Pa., Nov. 14, 1916. The accompanying plate is from a photograph taken in November, 1904.

² Dictionary of Birds, pp. 549-550, 1896.

butions to the literature of this fascinating subject will compare favorably with those of any other country and the work of Prof. Wells W. Cooke, her foremost student of bird migration, has already received recognition at home and abroad. Although it was not his privilege to journey to distant lands to observe birds, or to spend a half century watching migration at an ornithological observatory like Heligoland, nevertheless he was reared in the midst of the greatest avian highway of the continent and at an early age was attracted by the movements of the winged hosts passing north and south in spring and autumn. He not only improved his opportunities but succeeded in coördinating the efforts of others in collecting data and thus was able to make substantial additions to the sum of knowledge in his special field of investigation.

Wells Woodbridge Cooke, son of Rev. Elisha Woodbridge Cook and Martha Miranda (Smith) Cook, was born in Haydenville near Northampton, Mass., on January 25, 1858.¹ Cooke's father was a Congregational minister who had been brought up by his uncle, Wells Woodbridge, and after whom he named his son. The family included nine children — six girls and three boys; Wells, the fifth child and eldest son, received from his parents a heritage of patience, persistence and quiet force that contributed much to his success in later years. At an early age he was taken to Townsend, northeast of Fitchburg, Mass., and later to Hopkinton, N. H., where the family lived two years. About 1864 when he was six years old he accompanied his parents to Ripon, Wis., where his father had been appointed pastor of the church. Here in the lake region of eastern Wisconsin, Wells' boyhood was spent and here he received most of his education. He early exhibited an interest in natural history and when about twelve years of age he was given his first gun. He at once began to collect the common birds of the neighborhood and made frequent trips to Green Lake a few miles from Ripon in search of specimens. At first he merely mounted the heads and wings on boards and it was some time before he learned to prepare specimens

¹ The year 1858 is an important one in the history of ornithology. It marks the close of the first century of systematic work, which began with the publication of Linnæus' *Systema Naturæ* in 1758, and the dawn of a new era in American ornithology signalized by the appearance of Baird's great work on North American birds.

according to approved methods. It would be interesting to know what were the influences during these years which moulded his future, what books or what companions directed his thoughts and aroused his enthusiasm in birds rather than in some other line of study. But apparently he has left no record on this point and his reticence regarding personal matters was such that he seldom mentioned his early ornithological studies even to his most intimate friends.

After completing the course in the preparatory schools he entered Ripon College and later studied at the University of Iowa in 1876, but having been taken ill in the following winter was compelled to return home. He again entered Ripon College and in due time graduated in the class of '79 with the degree of A. B., and in 1882 received the degree of A. M. On November 27, 1879, he married Miss Carrie Amy Raymond, daughter of Eusebe L. Raymond and Emily Lucina (Lucia) Raymond, a young lady who had been born and brought up in Ripon and whom he had known for some years.

Immediately after graduation he secured an appointment as a teacher in the Indian schools and was assigned to duty in north-western Minnesota. The next six years were spent in teaching, partly in the Indian Service, chiefly among the Chippewas, Choctaws, and Otoes, and partly in secondary schools, at half a dozen different places in four different States. His first school was on the White Earth Indian Reservation, Minn., just west of Lake Itasca, where he was noting the arrival of birds in the spring of 1881.¹ Here he spent three years although probably not all at one time as he was in Iowa late in 1881. The ornithological results of his residence on the Reservation were embodied in a paper on 'Bird Nomenclature of the Chippewa Indians.'² In the early part of 1882 he was back in Minnesota but the latter part of that year and the spring of 1883 were spent in Jefferson, Wis. Late in the summer he went to the Indian Territory (now Oklahoma) and taught in the Indian school at Caddo in the Choctaw Nation. Here he remained from August 27, 1883, to April 8, 1884, and his observations on birds were summarized in a recent paper on the winter birds of Oklahoma.³ From Caddo he went to Red Rock among the Otoes

¹ Bull. Nuttall Orn. Club, VI, p. 186, 1881.

² Auk, I, pp. 242-250, 1884.

³ Auk, XXXI, pp. 473-493, 1914.

in the northern part of the Territory but was there only a few months when he was stricken with typho-malaria and was obliged to abandon his work. He returned north and staid at Moorhead, Minn., opposite Fargo, N. Dak., while he was recovering from the attack of fever. Here he continued teaching until the following summer when he left for Vermont to enter upon his college work.

The years thus spent in teaching in the Mississippi Valley are important not only because they afforded an opportunity for field work among the birds of widely separated localities but because they mark the beginning of coöperative observations on migration in the United States and the publication of the most detailed annual records of migration for a wide area that have ever appeared. The earlier reports which appeared in 1882 and 1883 brought the author into correspondence with observers in the middle west and gained for him substantial recognition by the American Ornithologists' Union which at its first meeting appointed a committee to coöperate with him¹ and in 1884 elected him an active member of the Union.

How or where Cooke first conceived the idea of coöperative observations on the movements of birds is not mentioned in any of his reports, but it is important to recall that similar work had been undertaken in Europe a few years before. In Germany observations were begun by Blasius, Reichenow and Schalow about 1876,² and in Scotland Harvie Brown and Cordeaux collected reports on the autumn migration of 1879 from light houses on the coasts of England and Scotland.³ In both the German and English reports the observations begin in the autumn and continue through the winter and spring as do those of Cooke's first reports. In a review of the English report Dr. J. A. Allen suggested as early as 1880³ that it would be desirable and not impracticable to establish an ornithological bureau to which observations could be sent and elaborated, and that nowhere were conditions more favorable for systematic work than in the United States. This suggestion was made five years before the plan became an accomplished fact in the organization of the work now carried on by the Biological Sur-

¹ Bull. Nuttall Orn. Club, VIII, pp. 225, 230, 1883.

² Zur Vogelkunde Deutschlands, I Jahresbericht (1876) des Ausschusses für Beobachtungs-Stationen der Vögel Deutschlands, J. f. O., 1877, pp. 278-342.

³ Bull. Nuttall Orn. Club, V, pp. 175-177, 1880; see also Ibid., VIII, pp. 228-231, 1883.

vey. Evidently the dawn of a new era in the study of migration in America was close at hand.

In the winter of 1881-82 Cooke invited the ornithologists of Iowa to send him lists of winter residents and dates of the first arrival of spring migrants. The field of investigation was soon extended to include the whole Mississippi Valley. The reports for 1882 were published in 'Forest and Stream' for October to December, 1882; those for 1883 in the 'Ornithologist and Oölogist' for that year, and those for 1884 and 1885 in the bulletin on 'Bird Migration in the Mississippi Valley' issued by the U. S. Department of Agriculture.

In the autumn of 1885 Professor Cooke entered on a period of college work which lasted 16 years, during which time he was connected with three institutions, the University of Vermont, the State Agricultural College of Colorado, and the State College of Pennsylvania. He went to Burlington, Vt., as a graduate student of chemistry, apparently attracted partly by the presence on the faculty of Prof. A. H. Sabin, under whom he had studied chemistry at Ripon College. In January, 1886, he was employed as a lecturer in the Agricultural College and as State Chemist, and a few months later was appointed Professor of Agriculture in the University. Upon the organization of the Experiment Station early in 1887 he was made Director, a position which he held until September 1, 1893. He was evidently fully occupied with the many details of organization and administration connected with Station work. Of the 39 bulletins published during this time he was the author in whole or in part of 24, on such varied subjects as fertilizers, feeding experiments, insecticides, maple sugar, and testing dairy cows. In addition he prepared the annual reports and a number of short articles or notes on agricultural topics. From an ornithological standpoint the eight busy years at Burlington were the least productive of his life. Beside putting the finishing touches on his migration report he published only one short note in 'The Auk.' In later years he remarked that while he had added one bird to the Vermont list during his residence in the State he had never published the fact, whereas he published several additions to the Colorado list during his stay in that State although none of the additions were based on his own observations.

From Burlington, Cooke went directly to Fort Collins, Colo., where in the autumn of 1893 he took up the duties of Agriculturist at the State Experiment Station. He remained in this position for seven years busy with the varied duties connected with teaching agriculture and attending farmers institutes, but not unmindful of the birds. His experiment station work dealt with problems of forage crops, stock feeding, sugar beets, and dairying. Of the 13 bulletins which bear his name he was sole author of 9 and co-author of 4; four of these publications relate to stock feeding and three each to sugar beets, miscellaneous farm notes, and birds. Conditions at Fort Collins were evidently much more favorable for bird study than at Burlington and the incentive of a new fauna, diversity due to influence of altitude on bird life, and the opportunity for observation during his thousands of miles of travel every year in the course of his station work bore rich fruit later in his 'Birds of Colorado.' A few months after his arrival his first paper appeared and during his residence in the State he published 10 articles on birds in addition to three bulletins on the 'Birds of Colorado.' Two incidents of his Colorado experience also merit mention — a visit to Salt Lake City the most western point he ever reached and a severe attack of typhoid fever in October, 1895, from which he did not fully recover for nearly a year.

At the beginning of the autumn term of 1900 Professor Cooke became connected with the Pennsylvania State College in the capacity of volunteer associate engaged in research work in animal nutrition. The results of this work appeared in a paper on 'The Maintenance Ration of Sheep.' This report was finished in the spring of 1901 and is interesting as the first publication signed 'Wells W. Cooke.' All his previous papers appeared under the name 'W. W. Cooke,' and the change he afterwards explained was made at the beginning of the new century and was consistently maintained, except in his migration papers in 'Bird-Lore.' Thus, even without dates, it is easy to distinguish his 19th century from his 20th century contributions.

On July 1, 1901, Professor Cooke received an appointment in the Biological Survey in the U. S. Department of Agriculture and the remaining 15 years of his life were devoted to work on bird migration and distribution. As Dr. Chapman has well said,

never were man and opportunity better mated,¹ and he entered upon his work with characteristic energy and enthusiasm. His first position, was that of Expert Assistant, but on July 1, 1902, he was made Assistant Biologist, on July 1, 1908, Bird Migration Expert, and on November 1, 1912, Assistant Biologist, with bird migration and distribution as his chief work in all these positions. He undertook an exhaustive examination of the literature of migration and began a bibliography of the subject, but finding it difficult to differentiate between migration and distribution he devoted his attention to both subjects. He introduced the plan of entering each migration record on a separate card and wrote many thousands of cards with his own hand. This monotonous routine labor brought on writer's cramp and although he trained himself to write with his left hand this hand also suffered in the same way and in his later years he could not write more than ten or fifteen minutes without changing from one hand to the other. In 1915 he had the satisfaction of reporting that the number of cards in the migration index had passed the million mark. He naturally took a deep interest in the enactment of the Federal Migratory Bird Law, attended the hearing on the bill before the House Committee on Agriculture, and later as a member of the Biological Survey Committee took an active part in framing the regulations for carrying the law into effect. Outside the office his activities were manifested in various directions. He was an active member of the Biological Society of Washington, and served as treasurer from January 1, 1914, until his death. He also took a very active part in the work of the Audubon Society of the District of Columbia, serving on its executive committee, as one of the teachers in the bird classes, and as the principal leader on the spring outings organized to study birds in the field. He aroused much enthusiasm in the members in making migration notes, and collected material for two comprehensive papers on the migration of local birds.

Of Cooke the man it is unnecessary to speak except for the benefit of those who never had the pleasure of meeting him. In stature he was somewhat below medium height and rather slight. Although somewhat frail in appearance, at least in his later years,

¹ Bird-Lore, XVIII, p. 189, June, 1916.

he was very active, fond of outdoor exercise and could walk farther and with less fatigue than many a man more robust and apparently more athletic. In manner he was quiet, somewhat serious, but always genial and willing to assist his friends or acquaintances. He was wonderfully patient not only in imparting information but in accepting petty annoyances. In certain respects he had a keen sense of humor and did not hesitate to recount incidents which must have been anything but amusing to him at the time. A situation created by the editorial blue pencil which made him say something very different from what he intended, or which consigned his manuscript to cold storage for a year or two, a mishap on an outing resulting in an accident in a boat at night, or his efforts to hold the attention of an audience in a carefully prepared lecture when the boys in the front row were chiefly interested in projecting their silhouettes on the screen, were all described for the benefit of his friends as freely as any other information at his disposal. He had a large and constantly increasing circle of friends. A new face in the office, whether of messenger, clerk or field assistant, always aroused his interest and he usually made a point of becoming acquainted with the new comer at the first opportunity. He was also interested in the personal history of his friends, and would make special inquiries to satisfy his curiosity, but it was done so quietly that hardly anyone would suspect that he had more than a casual interest in the individual. For such details his memory was remarkable. He was fond of classical music and enjoyed a good concert or opera almost as much as he did tramping in the woods. He always found congenial spirits among those who were fond of being outdoors whether in tramping, botanizing or observing the birds. Much of his spare time was spent in the country summer and winter, exploring the vicinity of Washington in search of birds, ferns, or new walks. Few residents of the capital knew the surrounding country better than he and he took a prominent part in organizing the spring outings of the Audubon Society, the walks of the College Women, and occasionally in acting as leader on the outings of 'The Wanderlusts,' an active walking club of the city. It was his custom to spend several afternoons and evenings each week at 'The Wickiup,' at Viresco, on the Virginia side of the Potomac, a few miles above Washington. Here on a three-

acre tract of land belonging to his sister, a commodious one room cabin was built with a cheerful open fire place and a comfortable porch, where with his sister and daughter he entertained informally but with unusual hospitality several hundred of their friends a few at a time in congenial groups. Here he brought together a collection of living ferns of the District practically complete so far as local species were concerned, and here and on an adjoining farm he made his first bird census in 1911. The Wickiup will long be remembered not only by those who have seen it, but also because of its association with certain phases of his ornithological work. In 'Bird House Tenants'¹ he has described his failure to induce Purple Martins to take up their abode in the house erected for their special benefit, and in the bird census reports² he refers to his first experiments at this place where the ideas were gained which later were embodied in the instructions sent to observers who coöperated in the first general census.

Cooke was an indefatigable worker and his interests extended into several distinct fields. The list of his ornithological contributions prepared by himself includes about 200 titles, but no list is available of his many publications on the branches of agriculture to which he devoted attention. It is impossible at this time to give a bibliography of his publications on birds or to attempt more than a brief reference to some of the more important papers. His first article appeared in 1881,³ and his last in 1916,⁴ within a day or two of his death. During the 35 years of active work his chief contributions were made to the subjects of distribution, bibliography, and migration.

In distribution his most important contributions are Part 2 of the bulletin on 'Bird Migration in the Mississippi Valley' and his 'Birds of Colorado' with three supplements,⁵ bringing the informa-

¹ Bird-Lore, XV, p. 112, 1913.

² U. S. Dept. Agr., Bull. No. 187, pp. 2-4, 1915; Bull. No. 396, pp. 15, 17, 1916.

³ Bull. Nuttall Orn. Club, VI, p. 186 (A brief note on the Least Bittern in Minnesota).

⁴ 'Labrador Bird-Notes,' Auk, XXXIII, pp. 162-167, and a note on 'The Type Locality of *Uria l. troile*,' Ibid. p. 196. Mar. 31, 1916; 'Migration of North American Birds' (Titmice), Bird-Lore, XVIII, p. 97, Apr. 1, 1916. Two posthumous publications appeared later in the year—a note in 'The Auk' in July and his second bird census report in October.

⁵ Colo. Agr. Expt. Station, Bull. No. 44, 1898; Ibid. No. 56, 1900; Auk, 1909, pp. 400-402.

tion down to 1909. In the 12 years between the appearance of the original bulletin and the third supplement on the birds of Colorado, the number of species credited to the State was increased from 363 to 397 and the number of those breeding from 236 to 248. Early in 1912 appeared W. L. Sclater's 'History of the Birds of Colorado,' in which the total number of species was given as 392 (including 13 not given by Cooke) and the number of those breeding reduced to 225. Cooke promptly published a paper on 'The Present Status of the Colorado Check List of Birds,'¹ in which he analyzed the differences in the two lists, accepted most of Sclater's eliminations from the breeding list but concluded that the total number of species should be increased to 403, to which might be added 7 more, the status of which was still in doubt. Important in this connection are his papers on 'The Winter Ranges of the Warblers'²; 'Some Winter Birds of Oklahoma'³ based on his own observations in 1883-84, and 'Labrador Bird Notes'⁴ based on the field notes of Clarence Birdseye. He has also left in manuscript a detailed list of the 'Birds of New Mexico.' The long series of migration articles in 'Bird-Lore' and in his bulletins on various groups of birds published by the Biological Survey contain a wealth of data regarding the distribution of the species mentioned. Members of the committee in charge of the preparation of the Third Edition of the 'Check-List of Birds' published by the American Ornithologists' Union in 1910, will recall that he devoted an immense amount of time and energy to the preparation of data which were incorporated in the revised statements of the distribution of the species.

In bibliography his first important work was in connection with the 'Birds of Colorado.' The original bulletin contained 182 titles and the number was increased in 1900 to 225. In the Third Supplement he stated that the additional titles for 1900-1909 numbered 118 and the 'less important titles' omitted in previous lists 91, thus making a total of 434, although he gave only 61 of the additions in full. Sclater's bibliography brought down to Decem-

¹ Condor, XIV, pp. 147-153, July 1912.

² Auk, 1905, pp. 296-299.

³ Ibid., 1914, pp. 473-493.

⁴ Ibid., 1916, pp. 162-167.

ber, 1910, included 294 titles, the difference of 140 being accounted for mainly by the omission of minor references. These apparent discrepancies are significant in illustrating his method of work. With Cooke a record was a record and a title a title, however unimportant, and in consequence his lists seem longer than those of others covering the same field. In the preparation of the 'Ten Year Index to the Auk,' 1915, the basis of the work was a series of cards which he had made in connection with the indexes of the Biological Survey, and as secretary of the committee he performed the greater part of the labor in preparing them for publication. An immense amount of bibliographical material was collected in the course of his work on bird migration, but unfortunately the bibliography of migration to which he had devoted much time and labor was never brought to completion.

Of his publications on migration it is difficult to speak adequately in a few lines. Prof. Alfred Newton says: "A very praiseworthy work was performed by Prof. W. W. Cooke, whose 'Report on Bird Migration in the Mississippi Valley' in 1884 and 1885.... was edited by Dr. C. Hart Merriam. Some of the facts herein adduced are highly suggestive, but it must be remarked that on several points there is a difference of opinion between the author and the editor."¹ Fortunately the editor's opinions are carefully separated from those of the author and the reader can thus compare both statements and reach his own conclusions. Doctor Merriam himself says in the preface: "I feel no hesitancy in expressing the belief that the present report is the most valuable contribution ever made to the subject of bird migration." The later contributions on migration are published in two general series of papers in 'Bird-Lore' and in the bulletins of the Biological Survey. The 'Bird-Lore' articles extend over a period of twelve and a half years from December, 1903 to April, 1916, and contain tabular summaries of records of most of the migratory land birds, including the warblers, thrushes, flycatchers, vireos, sparrows and kinglets. The Survey bulletins on distribution and migration include one report on the warblers (1904) and five on water birds and waders: ducks, geese and swans (1906); shorebirds (1910); herons (1913);

¹ Dictionary of Birds, Migration, p. 562, 1896.

rails (1914); and gulls (1915). A report on the terns was finished but not published and one on the auks and grebes was almost completed. Thus Cooke has published on most of the migratory birds of North America except the albatrosses, petrels, pelicans, cormorants, pigeons, hawks, cuckoos, goatsuckers, swifts, and hummingbirds. Important also are his two articles on migratory birds in the 'National Geographic Magazine' in 1911 and 1913, and his two papers on 'Bird Migration in the District of Columbia.'¹ In the latter he has worked out with great precision from a long series of observations the average dates of arrival and departure of the various migrants.

During the progress of his investigations he published from time to time a few general papers on the broader questions of migration and on his methods of work. In an article on 'The Effect of Altitude on Bird Migration'² he compared the records from Asheville and Raleigh, N. C., and showed the marked differences in avifauna and time of arrival caused by a difference of 1700 feet in the elevation of these two places in the same State. In 'Routes of Bird Migration'³ he advanced his theory of 'parallels of migration'; in a paper entitled 'Many Eyes are Better Than One Pair.'⁴ he emphasized the importance of coöperative work, as shown by observations in the vicinity of the National Capital; and in a note on 'Averaging Migration Dates,'⁵ he explained his apparently arbitrary method of selecting dates. Some years ago he published 'Some New Facts about the Migration of Birds'⁶ accompanied by maps showing the wonderful migration route of the golden plover, and the variation in the speed of the robin during migration. Twelve years later he revised and expanded this paper in his bulletin on 'Bird Migration,'⁷ which contains his latest views on the subject. In this connection it is interesting to note that while he declined to accept Palmén's 9 'Zugstrassen' (migration routes) for Europe and Asia, he himself outlined no less than 7 'principal migration routes'

¹ Proc. Biol. Soc. Wash., XXI, pp. 107-118, 1908. Ibid., XXVI, pp. 21-25, 1913.

² Auk, 1904, pp. 338-341.

³ Auk, 1905, pp. 1-11.

⁴ Auk, 1907, pp. 346-348.

⁵ Auk, 1908, pp. 485-486.

⁶ Yearbook U. S. Dept. Agr. 1903, pp. 371-386.

⁷ U. S. Dept. Agri. Bull. No. 185, pp. 1-47, 1915.

for North America (p. 8). While he rejected Middendorff's term '*isepipteses*' proposed in 1855 to denote lines of equal flight or simultaneous arrival, he adopted precisely the same thing in his maps prepared for the use of the Committee on Regulations on Migratory Birds in 1913, and published them as '*isochronal lines*' in 1915.¹ Although he paid scant attention to the work of banding birds, only a few weeks before his death he had occasion to alter materially his views regarding the routes of certain species of ducks on account of data derived from this source. But it is greatly to his credit that he was ever ready to modify his opinions in the light of new data or reject an old hypothesis which was made untenable by new and more complete records.

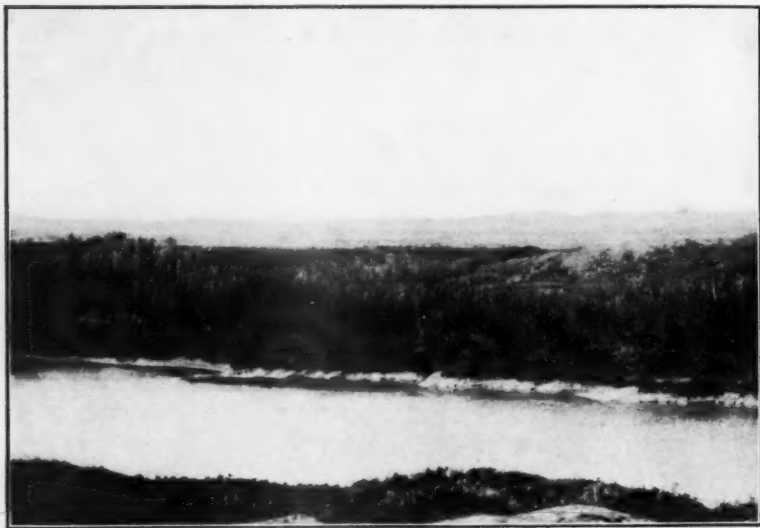
Cooke's principal contributions to ornithology were undoubtedly his great work in collecting, arranging and preparing for use the immense mass of records concerning the migration and distribution of North American birds, in giving instruction on these subjects through publications, lectures, and personal advice, and in stimulating interest and coöperation in bird study and especially in bird migration — in short in the application of existing information to the actual solution of certain ornithological problems.

Suddenly at the opening of the spring of 1916 he was called upon to lay aside his work. He had recently passed his 58th birthday and apparently had several years of active and useful work ahead. But just at the height of his activity and usefulness when he was hoping to see the early completion of several projects in which he was interested, his hand was stayed and the pen which had long been overworked was laid aside forever. Rarely in the annals of ornithology has the advent of what has been called the greatest adventure in life come under more appropriate circumstances. On Monday, March 20, it was my privilege to accompany Professor Cooke and his daughter on what proved to be his last outing. Swans had been reported on the Potomac just below Alexandria near Jones Point where about a dozen of the stately birds were found feeding and swimming about some distance from the shore. Professor Cooke was greatly interested in them and remarked that it was many years since he had seen his last live wild swan in the

¹ Bull. 185, pp. 36, 38, 42.

upper Mississippi Valley. He also examined with much interest the historic stone marking the southern corner of the District of Columbia which he had never happened to see before. The next afternoon he attended a concert, and Wednesday morning while at a conference in the Biological Survey he complained of feeling ill, and excusing himself went home. So quietly did he leave that few of his fellow workers in the office realized that he had gone. The following Monday he was removed to George Washington Hospital and on Thursday morning March 30, 1916, at 1 A. M. he died of pneumonia after an illness of only eight days. Funeral services were held on Sunday at the First Congregational Church and were attended by several hundred friends and acquaintances. The exercises at Glenwood Cemetery where the casket was placed temporarily in a receiving vault were attended only by representatives of the American Ornithologists' Union, the Audubon Society, the Biological Survey, and a few friends. It was a cold gray afternoon, and as the little circle gathered about the casket and the reading of the committal service was begun, a bluebird uttered its plaintive note, a flicker called from a neighboring tree, and a mockingbird joined in and sang throughout the reading. What more appropriate rites for a true lover of birds! A few days later he was cremated and his ashes transferred to Ripon, Wis., for burial beside the remains of his wife who had died ten years earlier. Here amid the scenes of his childhood and early manhood where he first began to study birds, another ornithological shrine is now located at the last resting place of Wells W. Cooke, "Father of coöperative study of bird migration in America."

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1. GRAND ROMAINE RIVER, SHOWING HUDSONIAN VALLEY, ARCTIC
BARRENS AND MOUNTAINS.

2. SHEKATIKA RIVER AT THE HEAD OF SHEKATIKA INLET.

IN AUDUBON'S LABRADOR.

BY CHARLES W. TOWNSEND, M. D.

Plates III-V.

EVER since my boyhood when I read Audubon's 'Birds of America,' with its frequent references to the Labrador coast, I have longed to follow the great ornithologist's footsteps in those regions. In 1906, on a visit to eastern Labrador, I had a glimpse of Bradore and Blanc Sablon the termination of Audubon's trip, and in 1909 and 1912, I reached, from the west, the starting point of his trip at Natashquan and looked eagerly into the promised land. After another interval of three years, I was able, in 1915, to carry out my longed for plan and explore the intervening two hundred and fifty miles — *Audubon's Labrador.*

It was on June 6, 1833, that John James Audubon, the great ornithologist, sailed from Eastport, Maine, on his long contemplated trip to Labrador. With him, as assistants in his work of procuring specimens, were five young men, all between eighteen and twenty-one years of age. These were his son, John Woodhouse Audubon, the father of Miss Maria R. Audubon, who has preserved for us in 'Audubon and His Journals,' the valuable records of her grandfather's life; William Ingalls and George C. Shattuck, afterwards physicians of prominence in Boston, both of whom in their ripe old age, I was privileged to know; Thomas Lincoln and Joseph Coolidge.

Under the command of Captain Emery, the top-sail schooner *Ripley* of one hundred and six tons burden, carried this interesting company through the Straits of Canseau, touched at the Magdalen Islands, passed the famous Bird Rock, white as snow from the vast multitude of birds, and, on June 17, reached the coast of the Labrador Peninsula, at the little port of Natashquan or American Harbor, as it was then called. The young men, incited by the enthusiasm of their leader, were all eagerness to explore the new and strange region, a land of bog and rock, of dwarfed vegetation and lingering snowbanks. One of the first fruits of their

efforts was the discovery of a hitherto unknown sparrow, which was named by Audubon, Lincoln's Finch, after Tom Lincoln who brought it down with his fowling-piece.

At Natashquan, Audubon saw the Montagnais Indians, who had just come out of the interior for their annual trading at the Hudson's Bay Company's Post. He also met Captain Bayfield of the *Gulnare*, who was laboriously mapping the coast and whose chart, far from perfect, is the one on which the charts of today are based.

Delayed by repeated storms, it was not until June 28th that the *Ripley*, cleared from Natashquan, touched at the islands near Old Romaine crowded with breeding water-birds, and came to anchor in the wild and desolate harbor of Wapitagan. After a study of the great bird rookeries of this region, the *Ripley* took to sea and, by good chance, stumbled into that wonderful rock-enclosed harbor at Little Mecattina Island, now known as Hare Harbor. The ruggedness of the rocky hills, the arctic character of the vegetation, the presence of snow banks and the frequency of gales and cold rain storms, chilled the southern blood of Audubon, who sighed for the genial climate of his native Louisiana. Yet he persevered in his work of adding to our knowledge of the little known northern birds, often spending eighteen hours a day at the drawing table. Cold and wet, assailed by vicious mosquitoes and flies, sometimes homesick, often seasick, worn out by his long hours of labor, he exclaimed, "I am no longer young!" His worst handicap, however, was the pilot that was taken in by Captain Emery to guide them in this intricate coast. This man was so ignorant of the region that he was unable to sail through the many safe and quiet waterways among the islands, but put to sea between each harbor and subjected the whole company to all the perils and discomforts of the stormy Gulf.

From Little Mecattina, they sailed to Baie de Portage, now known by the more prosaic name of Mutton Bay. From here, Audubon visited in a small boat, a trapper and trader at Mecattina Harbor, Pierre Micheaux by name, as well as Samuel Robertson at Sparr Point.

Setting sail on July 26, he hoped to call at "Chevalier's Settlement" at the mouth of the St. Paul River, but unfavorable winds, stormy seas and the ignorance of the "ass of a pilot" prevented,

and the *Ripley* continued on to Bradore Bay. Here Audubon called on Mr. Jones, an interesting character, the foremost man of the place and visited Perroquet Island, where Puffins, or Perroquets as they are called, bred in countless thousands. He extended his explorations to Blanc Sablon and succeeded in finding the nest of a Horned Lark, long sought in vain. He also secured a pair of Black Gyrfalcons called by him *Labradorius*.¹ He refers to the now extinct Labrador Duck and saw many hundreds of Esquimaux Curlew.

On August 11, Audubon turned homeward by way of Newfoundland. His arduous trip was well worth all its hardships. He brought back seventy-three bird skins, as well as a large collection of plants and other objects of natural history. He observed or mentions some ninety-three different species of birds and recorded much that was hitherto unknown. Lincoln's Sparrow was discovered and described and twenty-three drawings of the birds were completed or nearly completed. He worked hard and had been well rewarded.

With my companion, Mr. Harold St. John, botanist, both of us for the time, members of the staff of the Canadian Geological Survey, I left Montreal on June 24, 1915, on the S. S. *Cascapedia*. My old friend Captain Hearn was in command and he had his usual stock of sea tales and witty sayings. Napoleon P. Comeau, the veteran naturalist of Godbout, an authority on the life history of our salmon and a recognized ornithologist, added to the pleasure and interest of the trip. Late at night, on June 27th, we landed at Esquimaux Point, where we found our pilot, Captain A. Edmond Joncas and his schooner, the *Sea Star*, and also my friend M. Johan Beetz, who had invited me to stay with him at his home in Piashte Bay.

The next morning, leaving Mr. St. John to get settled on the *Sea Star*, I sailed in the little mail schooner with M. Beetz and that afternoon arrived at Piashte Bay, where I had the pleasure of spending five delightful days with him and his charming family. We explored the neighboring land and waters and found an abundant

¹ In the original plates the Black Gyrfalcon, called *obsoletus* by Gmelin in 1788, is figured; while in 'The Birds of America,' although the details of the capture of the birds in Labrador are given, the bird is described and figured as the Iceland Gyrfalcon.

bird-life. Of warblers, the Black and White, Tennessee, Yellow, Myrtle, Magnolia, Black-poll, Yellow Palm and Wilson's were all in full song as well as a few Water-Thrushes, Maryland Yellowthroats and Redstarts. Yellow-bellied and Olive-sided Flycatchers were there and White-throated, White-crowned, Lincoln's and Swamp Sparrows and Juncos were common. Eiders with their dusky, downy broods and Great Black-backed Gulls with their speckled young abounded in the bay. On the river were broods of Black Ducks and I found a nest of a Red-breasted Merganser or "*Bec-sie*," with eight eggs under some spruce bushes and Labrador tea.

I had also the great pleasure of examining with M. Beetz his interesting collection of birds and found in it no less than six species new to the list of birds previously recorded from the Labrador Peninsula. These were Kumlein's Gull, European Widgeon, Lesser Scaup, Killdeer, Red-winged Blackbird and Cliff Swallow. M. Beetz also showed me specimens that were intermediate between the Northern and American Eider.¹

On July 1, Mr. St. John arrived in the *Sea Star* and the next day we reached Natashquan, formerly called American Harbor, the starting point of Audubon's trip on the Labrador coast. This was familiar ground to me and we stayed at the house of the Captain's brother, Richard Joncas, the head of the "Labrador Fur Company." Here, like Audubon, we were detained by unfavorable weather, but the five days were well spent. Like Audubon also, I visited the Montagnais Indians at the mouth of the Great Natashquan River. They had recently come out of the interior for their annual religious festivities and for trading. I also followed the great ornithologist's footsteps up the shores of the Little Natashquan River as far as the falls. It was at Natashquan that Tom Lincoln shot the sparrow that Audubon recognized as new to science and named after this young man. "Three cheers," he writes in his Journal, "were given him when, proud of the prize, I returned to the vessel to draw it." In the plate he has drawn, the pale laurel, the cloudberry or bake apple and the Labrador tea, plants which, he says, were gathered by Tom Lincoln for the purpose.

¹ See Auk, 1916, XXXIII, pp. 286-292.

The song of Lincoln's Sparrow was to be heard everywhere. Audubon speaks of "the sweet notes of this bird as they came thrilling on the sense, surpassing in vigour those of any American Finch with which I was acquainted." It is a song of considerable beauty and great range of theme. At times I have recognized the general character of the melody of the Song Sparrow, at times the jingling notes of the Winter Wren, at times the impassioned warble of a Purple Finch. The song has generally a loud ringing character like the music of silver sleigh bells, with the interpolation of fine trills and deep flutelike notes. One bird I especially loved at Piashte Bay often ended his song with *Oh mieux* and occasionally followed it with an almost inaudible trill which sounded as if he were drawing in his breath after the supreme effort. It is an interesting and cheerful song, one which I always listened to with great pleasure.

The elusive Tennessee Warbler was really abundant here and in full song, and on several occasions it so far forgot its shyness as to appear in plain sight. It is a curious fact and possibly points to the recent increase of this bird, that Audubon, who knew it in the south, did not find it here, for he says in his 'Birds of America,' "Of its migrations or place of breeding, I know nothing."

I was glad to find a Piping Plover on the beach. Mr. Bent and I had seen a pair there in 1909 and I found a pair with young in 1912; this is apparently its most northern breeding point on the coast. I saw a Red-tailed Hawk as dark as the one I saw on the Little River of the Bear in 1912. I also saw a bittern that like the specimens in M. Beetz' collection, looked dark. I was unfortunately unable to secure either of these birds, which appear to illustrate the dark tendencies in plumage of Labrador birds.

The Fourth of July was hot for these parts, 62° in the shade at noon, and we found the last year's mountain cranberries or *graines rouges* still on the vines very refreshing. The botanical products of this region are most interesting but can only be lightly touched on here. I have referred to them in my previous Labrador papers. It is evident both from the vegetation and the birds that Natashquan is the boundary on the coast between the Hudsonian and Canadian regions to the west and the Subarctic coastal strip to the east. Another interest of the place was the Catholic Mission

Church, presided over by two Eudist fathers, Père Garnier, and Père Gallix, whose hospitality and interesting converse I greatly enjoyed.

On July 7, the wind was favorable and we set sail in the *Sea Star*. She was but forty feet long and seventeen tons burden, while Audubon's *Ripley* was over a hundred feet long and a hundred and six tons burden. The small size of our boat gave us an advantage, however, and we were most fortunate in our Captain, A. Edmond Joncas, a charming and interesting man and one who had navigated these intricate waters for over forty years and knew them as only one to the manner born could know them — for the charts are all but useless. I had brought with me a copy of Audubon's 'Labrador Journal,' which he read with great interest and not only recognized all the harbors mentioned but knew the descendants of the very people that Audubon met. We were indeed fortunate in our pilot, far more fortunate than Audubon.

From Natashquan to Grand Romaine, a distance of over fifty miles, is the only exposed strip on the coast, unprotected by islands, and we experienced the full sweep and heave of the stormy Gulf. We anchored that night at Grand Romaine, and at once visited the Indian encampment at the Hudson's Bay Post, where we were greeted by an outrush of Indian dogs, while the Indians, on the contrary, disappeared within their tents. By the judicious use of plug tobacco and by the aid of an interpreter, I was able to get some photographs of this interesting and picturesque people. The men wear their black hair cropt straight around their necks, while the women tie theirs up in hard round knots over their ears. Both sexes wear colored handkerchiefs about their necks and brilliantly variegated stockings, and mocassins or skin boots. The headgear of the women is made of red and black broadcloth, shaped like a classical liberty cap, with an embroidered band. Many of the younger men and women are handsome, with clear olive complexions and clean-cut features.

The view over the valley of the Romaine River with its thickly crowded spruce forest to the barrens or tundra, dotted with lakes and lakelets beyond, and the distant range of low mountains, is a characteristic one of this region. Black-poll Warblers were common in the stunted thickets, a brood of Golden-eye Ducks was dis-

porting itself in a pool and a pair of Pigeon Hawks attacked me fiercely in a sheltered valley where the trees were of larger growth.

On the ninth, we managed to reach the harbor of Old Romaine, a few miles down the coast and took refuge from the gathering storm which soon burst on us with great fury and prevented our departure for five days. It was somewhere in this neighborhood that Audubon made a brief exploration of one of the islands and found "two eggers just landed and running over the rocks for eggs." Much to my surprise, I found in one of the little Hudsonian islands of stunted spruce and fir and larch surrounded by arctic bog, a Maryland Yellow-throat in full song. Tree Sparrows were also nesting here and Horned Larks had their first brood on the wing and were singing and mating for the second brood. The Subarctic coastal strip is here of much larger extent than at its beginning at Natashquan.

Great Black-backed Gulls, with their interesting ways and varied conversational notes were our constant companions; their nests and downy young were distributed over the islands. Double-crested Cormorants were continually flying back and forth and a few Caspian Terns were to be seen. Audubon recorded these as Cayenne or Royal Terns. Frazar also found them here in 1884 and Mr. Bent and I saw one at the mouth of the Natashquan River in 1909. The Captain recognized the bird as "*le grand esterlette*," but failed to find for us their breeding place.

On July 14, we were at last able to get off and shaped our course for Audubon's first stopping place at Wapitagun. On our way we passed Audubon Island, so named doubtless, by Captain Bayfield in 1833, and we lay to at the mouth of Coacocho Bay at Outer Island, which was crowded with seabirds. A few great Black-backed Gulls flew about but every inch of the summit of the small rocky island seemed occupied by Double-Crested Cormorants and Murres. Most of the adults of the former species left as we advanced up the rock with cameras levelled and we soon found ourselves among the great nests of this species filled with young calling for food. Murres were everywhere about us and slow to take flight. The bare surface of the rock was covered with their eggs,—we counted one hundred in a space ten feet square,—but nearly all were befouled with the chalky, slimy excrements that covered every-

thing. The Cormorant nests, great basket affairs nearly two feet across and from three inches to a foot in height, were made of weed stalks intermingled with dry grass and sea weed, branches of curlew berry vine, spruce or fir. Many of the nests, although much soiled with the droppings of the bird, had some decoration in the form of a feather or two or a fresh green branch. A few of the nests contained eggs but in most of them were three young, sometimes four or only two. When small, the young were entirely destitute of down and were of the color and appearance of a black rubber doll. The larger ones from a foot to two feet long, were covered with a black woolly down suggestive of a toy black lamb. They were indeed weird objects as they thrust out their long snake-like necks and small heads. Their naked throat sacks, of a pale yellow color, tinged with pink, distended and quivered as they constantly called in hoarse, beseeching tones for food.

The Murres, or Marmettes, as they are called on the coast, stood about in crowds and anxiously made way for us, walking or running along erect, with legs apart in a comical manner as they waved their short paddlelike wings to aid them in balancing. In their anxiety and nervousness, they frequently fell over the Cormorant nests and sadly stained their white shirtfronts and often, in their attempts to rise on the wing, they would sprawl head foremost down the rocks, bounding from ledge to ledge. Ringed Murres were not uncommon and I came upon one group of fifteen or twenty together of this form or species, as it perhaps deserves to be called. There were no Brünnich's Murres.

We calculated there were about 1200 adult Double-Crested Cormorants nesting on the island and 2000 Murres. The Murres, although silent on the rock, uttered curious sounds as they flew, and, when they collected in groups on the water, their combined voices produced a long-drawn, moaning wail. At times it was a sharp snarl, at times it resembled the plaintive bleating of a forlorn lamb.

We sailed on and soon found ourselves under the cliffs of Cape Whittle, which rise from deep water to a height of about two hundred feet. The red rocks were painted white in places by cormorant droppings, but only fifteen or twenty nests were to be seen where up to a few years ago they were to be counted by hundreds.



1. DOUBLE-CRESTED CORMORANTS AND MURRETS ON OUTER ISLANDS,
COACOACHO BAY, CANADIAN LABRADOR.
2. DOUBLE-CRESTED CORMORANTS AND MURRETS ON GULL ISLAND OFF
CAPE WHITTLE.

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Among the birds that flew away, I saw only one Common Cormorant. Fishing schooners for years have been in the habit of sailing close to the cliffs and the men have discharged their guns at the poor birds for the brutal pleasure of seeing them fly off in terror or fall wounded into the sea.

At Gull Island, off the Cape, we found an even larger nesting colony of double crested Cormorants than at Outer Island and Murres were also abundant. That afternoon we sailed into the harbor of Wapitagon, so graphically described by Audubon in his history of the Razor-billed Auk. Wapitagon is an appropriate name for this region, as it is the Montagnais for Cormorant. On shore, which is entirely destitute of human habitation, I found a pair of Red-throated Loons in one of the lakelets,—about fifty yards long,—of the barren. They rose into the air at my approach and deserted their son and heir, who, in a coat of light brown down was vigorously swimming about his native pool. Mr. W. L. McAtee¹ has recently called attention to this ability of the Red-throated Loon to spring into the air from calm water, an accomplishment that is necessitated by this habit of nesting on the edges of small pools. A Loon would not have been able to leave this small pool on the wing unless a strong breeze had been blowing.

I also found a Least Sandpiper that rose in the air like a mechanical toy, sailed in irregular circles twenty to fifty yards above the bog, with wings curved down and back, and emitted at frequent intervals a short trill almost as finely drawn as that of a cricket. The bird was in the air for five minutes by the watch and continued to trill after he had reached the ground. Here he was at once obliterated, for his streaked brown back was next to invisible in the bog. He continued trilling as long as I was within ear-shot and even followed me repeating his simple nuptial song. Horned Larks and Pipits were common and the water ways abounded in Razor-billed Auks and Black Guillemots.

The next day, we reached the little harbor of Seal-Net Point, also known as Point au Maurier. Near here I was so fortunate as to find a breeding colony of Ring-billed Gulls, some five hundred in

¹ Auk, 1916, XXXIII, p. 75.

number. Audubon found the birds on the coast in 1833 and Frazar in 1884, but aside from these records, very little was known of this interesting bird in Labrador. The nests thickly scattered among the rocks and vegetation of a small island, were made up of neatly arranged dried grass and weed stalks and moss and feathers. Some of them contained one, two or three eggs, some contained downy young and some were empty.

Derby Bay, thickly dotted with islands, proved well worth exploring. There were but few Eiders and Great Black-backed Gulls nesting, but numerous Razor-billed Auks and Black Guillemots. The last named were courting,—swimming about excitedly in small groups and dipping their heads nervously. A couple would circle about each other, their mouths wide open so as to display the bright scarlet lining. Occasionally, the excited birds bobbed or bowed towards each other and dabbed with their bills. Their tails were cocked up and their red feet showed plainly in the water. From time to time they emitted hissing, whistling notes.

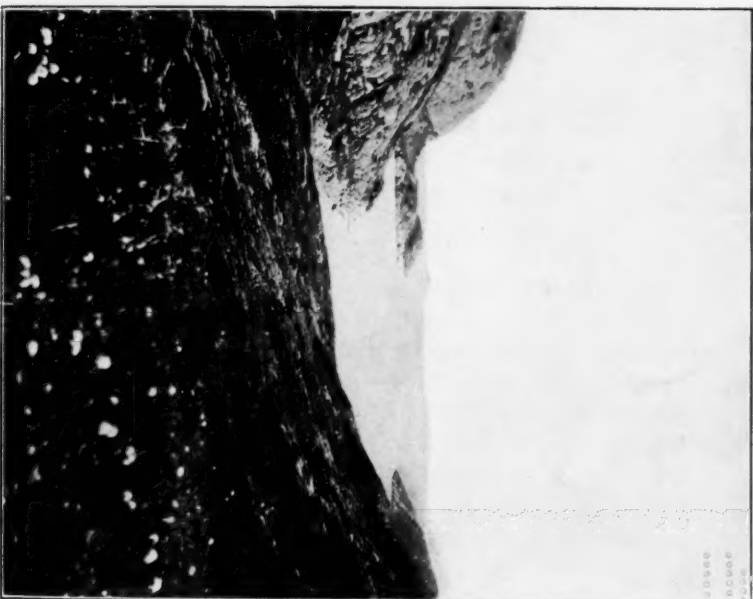
On July 18, we reached Harrington, where is situated the westernmost of the chain of hospitals established by Dr. W. T. Grenfell. It was here we recorded the highest temperature on the trip, 68° in the shade and it was reported in the village to have reached the oppressive figure of 72°. The average temperature during the trip was between 50° and 60° Far.

Hare Harbor in Little Mecattina Island was our next port of call. In this "bowl," as in Audubon's day, Ravens were flying about the cliffs which rise sheer from the water. It is a wild and picturesque region. From there before "a stiff southwest breeze" Audubon sailed thirty-three miles to Baie de Portage in five hours. We had half a gale from the same quarter, and were driven across, under nothing but a reefed foresail in three hours.

From Baie de Portage or Mutton Bay, we followed Audubon's footsteps into Big Mecattina Harbor, where the grandson of his French seal catcher still lives and to Sparr Point where I had the pleasure of finding Samuel Robertson the 3rd, surrounded by his Eskimo dogs and read to him on the 20th day of July, 1915, Audubon's account of his visit to his grandfather at the same place on July 22, 1833. There had been very little change here in the general conditions of life during all these years.



1. RING-BILLED GULL'S NEST AND EGGS, SEAL-
NET POINT.



2. HARE HARBOR, AUDUBON'S "BOWL," LITTLE
MECATUNA ISLAND.

[illegible]

It was a beautiful day as we sailed on over an emerald ocean of such clarity that we could see the bottom at several fathoms depth and soon found ourselves sailing northeast straight in among a maze of islands. After a passage of five miles through a waterway, a mile broad, we turned east and entered the eighteen mile passage between the islands and the shore, known as La Petite Rigolette. Audubon had wished to see something of this coast "crowded with islands of all sizes and forms, against which the raging waves break in a frightful manner," but his pilot was afraid to venture in and they sailed on, sadly buffeted over the turbulent Gulf as far as Bradore Bay.

Far different was our sail through the Rigolette which resembled a quiet inland river and finally debouched into a land locked basin over five miles in diameter, an inland lake with rocky semi-mountainous sides at the mouth of the great River St. Augustine. The waters here were comparatively birdless, for the Indians and fishermen,—the latter provided with motorboats,—were doing their deadly work. I found plenty of ornithological interest, however, on shore here and at Sandy Isle. At the latter place, a Black Duck in her attempts to draw me away from a reedy pool where her young were hidden, performed the wounded bird act on land, and I could plainly see that she was not the red-legged species which breeds still further north.

Sailing on, we entered what appeared to be a narrow rapid river, the entrance to Shekatika Inlet, sometimes called Jacques Cartier's Harbor. After we had passed the rapids, the shores widened and we sailed as in a rock-bound lake, surrounded by miniature mountains. There were little sandy beaches and pockets of forests in protected gullies. Again, the water narrowed ahead of us and we entered a second rapids. It emerged into another and larger basin over two miles in diameter. Passing through this, we turned abruptly to the northeast and entered a small but lovely basin. All the valleys were heavily forested and the tree line on the hills was much higher than near the mouth of the inlet. We had sailed eight miles from the entrance of Shekatika Bay to the entrance of the Inlet, and ten or twelve miles from there to our anchorage at the head of the Inlet. We had come from the Arctic zone with the trees flat on the ground to the Hudsonian zone of spruce and fir trees fifteen or twenty feet high. Here and there a giant black spruce, bare for the most with a tuft of dark foliage on its summit

towered ten or fifteen feet higher. The Arctic zone was still here, however, for the hills, which reached a height of five or six hundred feet, extended their rocky and lichen-covered summits a couple of hundred feet above the tree line.

Near here the Grand Portage begins. This is a narrow winding portage path that the moccasined feet of the Montagnais Indians have worn and polished for generations. It leads over the hills and by little lakes to the Big Coxipi River. Thence by a series of lakes and portages to the St. Paul River and over the height of land to Hamilton Inlet. A portage path is well suited to the purposes of an ornithologist, for on it he may cover large areas of country without the necessity of struggling through the thick growths except for short forays on either side. Near an Indian camping site, with wonderful views of the Inlet, a Labrador Jay was foraging and uttering his weird calls and it was not far from here that I obtained my type specimens of the Labrador Chickadee.

Our two days at Shekatika were very interesting, but, taking advantage of a favorable wind, we had to be on our way. We landed at Grassy Isle with its sand beach and fringe of strand wheat, an elevated elastic tundra of lichens, mosses and curlew berry, a pool of clear water and beyond this, fifty or sixty feet above the sea, an elevated beach of small and large pebbles. This was an example of the raised beaches which so puzzled Audubon, that are so common on this rising coast.

Our next landing was at Old Fort, the ancient Port of Brest, an interesting place. Forty or fifty feet above the narrow shelf close to the sea, where the little winter village stands, is a terrace and about a hundred and fifty feet higher another terrace, while on either side still higher are others. All bear the familiar earmarks of raised beaches. Behind is a land of rocky peaks and lakes and bogs, with small patches of forest in the protected valleys. Spruce Grouse, with their young were common and easily approached.

Here and at Grand Romaine, I had seen and heard Gray-cheeked Thrushes but unfortunately secured only one specimen. The measurements¹ of this and of two other specimens previously

¹ The measurements are as follows: Col. Bent, 3741 ♀ Esquimaux Point, June 13, 1909. Wing 102; Tail 73; Bill 13; Tarsus 28. Col. C. W. T. 1192 ♀ Cape Charles, July 28, 1906. Wing 95; Tail 67, Bill 13; Tarsus 23. Col. C. W. T. 1448 ♀ Grand Romaine. Wing 90; Tail 67; Bill 12; Tarsus 25.

secured from the Labrador Peninsula suggest Bicknell's Thrush as they are all small. A study of a larger series is, however, needed to determine the status of this bird in Labrador.

On July 26, 1833, Audubon recorded in his Journal that they intended to call at Chevalier's settlement but were unable to do so. On the same day, of July, eighty-two years later our Captain guided us safely in the *Sea Star* among the maze of islands into the mouth of the Esquimaux or St. Paul River and we paid our respects to Louis Owen Chevalier, whose father, Louis David, was a baby at the time that Audubon passed along the coast. His first ancestor to come to the New World was elevated to the peerage as the Chevalier de St. Paul and his descendant appeared to me to retain a certain aristocratic manner and speech. He was eking out a scanty existence by netting salmon at the mouth of the river.

The next day, we sailed on the final lap of the course and dropped anchor in Bradore Bay, now as in Audubon's day, reeking of fish and fishermen and filled with fog. Perroquet Island was one of my first objective points and I found the Puffins, or Perroquets as they are called, noticeably less than when I passed the island in 1906, and immeasurably less than in Audubon's day. If the present slaughter still goes on, they will soon be extinct here. At Greenley Island near by, the presence of the lighthouse keeper has a certain restraining effect on the fishermen, and the number of birds is larger. At Perroquet Island, the birds are shot in great numbers on their arrival in the spring by the Labradorians who camp on the island. They are shot by Newfoundland fishermen during the summer, caught in gill nets spread over the ground and dug out from their burrows.¹ Jacques Cartier visited this island which he calls the "Island of Birds" in 1534 and gives an unmistakable account of Puffins. He describes them as "Crows with red beaks and red feet; they make their nests in holes under the ground, even as Conies."

The steamer which was coming from Battle Harbor and was to take me to Newfoundland for my journey home, was due at any time, but fog and storm delayed her for five days. These days were

¹ See "Bird Conservation in Labrador." By C. W. Townsend, being Appendix IV in Seventh Annual Report of Commission of Conservation, Canada, 1916.

spent at Blanc Sablon where I enjoyed the hospitality of Mr. Edwin G. Grant, the agent of the great fishing establishment of Job Bros. & Co. Ltd. The valley of Blanc Salbon is of intense interest to the botanist and geologist as well as to the ornithologist, but space does not permit me here to more than hint at its joys. There is a broad flat valley floor with terraced hillsides and raised beaches on either side and elevated plains beyond. At the shore is ancient granitic rock and white sand, while the terraces are of red Cambrian sandstone. I found a pair of Wilson's Snipe, evidently breeding in one of the swampy meadows, and, in the thickets about the brook, were Swamp Sparrows and Lincoln's Sparrows and, to my great surprise, another species of the same genus, namely the Song Sparrow. As far as I know there is no other record for the whole Labrador Peninsula for the Song Sparrow except at Lake Mistassini, while in Newfoundland there are but few records. The Magdalen Islands are generally considered to be the northern limit on the eastern coast for this species. The specimen I obtained has, according to Mr. Bangs, the characteristics of the Nova Scotia bird.

In the sand dunes here and at Anse aux Dunes, Savannah Sparrows abounded but my search for Ipswich Sparrows was fruitless.

On the afternoon of August 2, in one of the lucid intervals of fog, the horn of the mail steamer *Meigle* was heard blowing and I bade good bye to my hospitable friends. I turned away from Labrador with very different feelings from those of Audubon, who recorded in his 'Journal': "Seldom in my life have I left a country with as little regret as I do this."

THE PRESENT ABUNDANCE OF BIRDS IN THE VICINITY OF FORT ST. MICHAEL, ALASKA.¹

BY F. SEYMOUR HERSEY.

To the student of ornithology there is always a certain interest attached to the birds that inhabit the far north; those hardy species that disdain the milder climate of more southern latitudes and rear their young on the bleak Arctic tundra, leaving only when the threatened freezing of land and sea warns them of approaching winter. The warmer parts of the earth have bird life in great abundance and variety, with many bright plumaged forms to delight the eye and not a few that entrance us with their songs, and it seems natural that birds should flourish in such places. But, if we leave these familiar feathered friends behind and push our way northward, until the forests give place to scattered patches of low alders and willows, and these in turn are replaced by great stretches of open tundra, we will still find both sea and land inhabited by vast numbers of feathered creatures. Few in number are the species, but countless the individuals that make up the avian population of the north. Many spend their entire lives in this zone, retreating, at winter's approach, only a short distance south where they linger about the edge of the ice pack until the snow begins to melt on the tundra and the ice to thaw about the tundra ponds. Then they again push northward to their breeding grounds where they are joined by others; winter sojourners in our own land, but now strangely unfamiliar in their nuptial plumage.

While there are, probably, few places on the Arctic or Bering Sea coasts that are without bird life during summer, some localities seem to be more suited than others to the needs of boreal species. One such region is the stretch of tundra in the vicinity of St. Michael. The village, itself, is built on a spot somewhat elevated, but to the south and southwest there stretches away a great territory but little above sea level; in fact, so low that an unusually high tide inundates large sections. Scattered about are innumer-

¹ Read before the Nuttall Ornithological Club, June 5, 1916.

able small ponds, and these are often connected by little creeks, thus forming a perfect network of waterways. In addition, two tide channels, known as 'canals,' run through the section cutting it off from the mainland and forming St. Michael Island. From these canals there radiate smaller channels, or 'creeks,' which penetrate the region in all directions. The water in both canals is salt and varies in depth with the rise and fall of the tide. When the tide is out large mud flats, of an exceptionally soft, sticky character, are left exposed, which, during August, are frequented by large flocks of migrating shore birds. These two canals vary somewhat in size and are generally spoken of as the Big and Little Canals. They unite just before reaching the sea both at the St. Michael and at the farther ends. The banks of the Little Canal, and the country which it traverses, are of a slightly higher elevation than that described above. They are covered with a growth of moss, small creeping plants, and a little coarse grass and make a breeding ground for shore birds, ptarmigan and jaegers, as well as a few ducks, terns and small birds. The lower country about the Big Canal is the chosen haunt of loons, gulls, ducks and cranes during the nesting season and in fall of migrating water fowl of all kinds.

At the entrance to the canal is an island, of interest as being one of the few known breeding places of the Aleutian Tern. In St. Michael Bay and close to the village stands Whale Island, where a few Horned Puffins and occasionally a Glaucous Gull nest, while some fourteen or more miles away is Egg Island,—the resort of Pacific Kittiwakes, Pallas's Murres and Horned Puffins. Across the bay a low range of hills stands out prominently to view. They are set back some distance from the shore and the stretch of marshy tundra between their base and the water's edge renders them difficult to reach, except when the ground is frozen in winter. They are all probably of volcanic origin; two of them, with huge apertures in their sides being clearly extinct craters.

This locality, so favorably situated for bird study, has been the scene of several ornithologists' labors, and a number of works on Alaskan birds have been published, based, more or less, on studies made at this point. Of these, Mr. Nelson's book¹ stands pre-

¹ Report upon Natural History Collections made in Alaska between the years 1877 and 1881 by E. W. Nelson. No. III Arctic Series of Publications Issued in Connection with the Signal Service, U. S. Army, Washington, 1887.

eminent. Since 1881, when Mr. Nelson left St. Michael, very little extended work seems to have been done there. Dr. Louis B. Bishop spent a short time there in 1899 and probably a few collectors have stopped, for a day or two, at various times since, but for over thirty years almost nothing has been published from this part of Alaska.

During this time many changes have taken place in the abundance of birds in other parts of North America. Species formerly numerous have become rare or even, in a few cases, extinct, while the settling up of the country has forced others to seek new breeding grounds, or adapt themselves to the advance of civilization in those already occupied. To set forth present conditions in this part of Alaska, and point out some of the changes that have taken place since 1881, are the purposes of the present paper; but nothing is intended in any way, as a criticism of any published statements of others.

From the descriptions of the early writers, it appears that St. Michael formerly consisted of a mere handful of houses. The settlement was a post of the Alaska Commercial Company and had very little communication with the outside world. The discovery of gold at the point where Nome now is and at various places along the Yukon River, about sixteen or seventeen years ago, resulted in a short period of very rapid growth. Steamers began making regular trips from Seattle during the season of navigation and hundreds of people flocked to the country. Wooden hotels were hastily erected but many of the arrivals were obliged to find shelter in tents pitched upon the shores of the bay. Several stores were opened and without doubt their proprietors reaped a rich harvest for a while. Soon, a line of river steamers was in operation between St. Michael and points on the Yukon and passengers and provisions were transported to the various mining camps. St. Michael thus became the junction point for travel between the interior and Seattle. With the advent of so many people, it became necessary to station troops at certain points to maintain order and army posts were established at Nome, St. Michael and Gibbon.

Like most towns that spring up almost in a night, a reaction soon set in and, for several years past, the population has been rapidly shrinking. Today, most of the buildings that were used as hotels

are abandoned, with doors and windows boarded up, while the river steamers, with a few exceptions, are drawn up on the beach where they are gradually falling to pieces. The outlook for the future is as dreary as the surrounding country.

Fortunately the influx of so many people did not have any disastrous effect on the bird life of the country. Without doubt some birds were shot for food, as they still are, but in the main, the people were too engrossed in their pursuit of gold to do much hunting.

During the writer's cruise along the Alaskan coast in 1914, several short stops were made at St. Michael and in 1915 plans were laid to spend the entire summer at this place. Favorable ice conditions allowed us to reach our destination as early as May 29 and the entire time until September 8 was spent there. Through the courtesy of the War Department quarters were provided at the Army Post and from there the writer explored a large part of the surrounding country.

At the time of my arrival and for a few days afterward, the sun shone from a cloudless sky with a warmth and brightness that I have seldom seen exceeded anywhere. This condition, however, was too good to last and there came, soon afterwards, a series of southerly gales accompanied by high tides that flooded all the low country and destroyed the nests of large numbers of breeding waterfowl. The gales subsiding, there followed several weeks of as disagreeable weather as can be imagined. Heavy clouds obscured the sun and fogs and light rains were frequent. A slight breeze, at times, piled up great cloud masses which would chase one another across the sky for hours, without breaking sufficiently to allow a view of the sun. The breeze at last dying out, the fog would again settle over everything. This condition lasted until about August 20 when a few sharp frosts seemed to clear the atmosphere and more pleasant weather followed although from this time, until the end of my stay, high winds prevailed.

Taken altogether, the climate of St. Michael is one of the most disagreeable I have ever experienced. Nevertheless it appears to have no depressing effect on the bird life of the country. Waterfowl are particularly numerous,—loons, gulls and ducks being most abundant.

Of the Loons the Red-throated is the commonest and the one

most often taken. A Black-throated species is also found in the proportion of perhaps ten percent, but it is a shyer species and less frequently obtained. I assumed it to be *arctica*, as this is the bird recorded by Nelson, but the only specimens I secured, two in number, proved to be *pacifica*. The Horned Grebe is rare in the region. A single bird only was seen and was secured. Horned Puffins breed quite abundantly on Egg Island and a few also nest on Whale Island. Among them an occasional Tufted Puffin may be noted. Pallas's Murre also breeds on Egg Island in about the same numbers as the Horned Puffin but unlike that species is rarely seen in St. Michael Bay.

The Pomarine Jaeger is seen about the bay for a few days after the ice goes out in spring. Usually they are found in pairs but none breed there. The Long-tailed and Parasitic Jaegers both breed and both are generally rather abundant, but their numbers vary somewhat on different days and in different years and I believe, from observations, as well as from the condition of specimens collected, that a part of the birds seen were not breeding.

The Pacific Kittiwake breeds in large numbers on Egg Island and is very common in St. Michael Bay during the entire summer. Mr. Nelson states that "none were found near St. Michael's after the migration until toward the end of July or 1st of August," so it is evident that they have either changed their habits or increased in abundance since he wrote. When the salmon were running in June, and the natives had seines placed at various points along the shore, great numbers of Kittiwakes were present and fed upon the refuse from cleaning the fish. Even after the fishing was over they lingered about the bay and there were few days when specimens could not have been shot from the dock. As Mr. Nelson does not mention the Egg Island breeding colony it is possible that it is but recently established and would explain the increase in the number of birds of this species now found about the bay.

Closely resembling the Pacific Kittiwake in life, the Short-billed Gull could be easily overlooked while feeding about the bays, but during the summer most of them retire to the tundra ponds. They are common at all times especially after the young have learned to fly.

Large flocks of Glaucous Gulls, made up largely of birds in imma-

ture plumages, are to be found during the entire summer about the outer bays. Adults in full nuptial plumage are less common and the species appears to breed in fewer numbers than at other points on the coast.

The Glaucous-winged Gull is rare at St. Michael and probably does not occur much north of there. In the fall, both the Slaty-backed and Vega Gulls are to be seen off shore but they do not often come into the bays. After I had boarded the steamer for the homeward trip, and before we got under way, both these species were seen with other gulls about the stern of the ship.

Probably the most abundant gull is the beautiful little Sabine's. This species suffered considerably from the gales and high tides during June and many nests were found that had been destroyed. No second attempt was made at nesting and less than a dozen young birds were seen during the summer. Eggs were found June 5, young but recently hatched on June 19, and the first young on the wing July 18.

Two species of terns are found. The Arctic Tern is very abundant and is found everywhere,—about the bay, on the islands and upon the tundra, often some distance from the sea. The Aleutian Tern is restricted to two small islands (perhaps to one) and occurs in very small numbers. One of these islands is situated at the mouth of the canal as already noted. Mr. Nelson describes the island and states that "twenty pairs or so" were nesting there when he visited it. This colony was still in existence when I landed on the island in 1914 and I estimated it "did not exceed (apparently) 100 birds" (Smithsonian Misc. Coll. Vol. 66, No. 2). From the observations made in 1915, and the greater familiarity with the species thus secured, I am confident the actual number of birds in the colony was between 65 and 75.

Upon my arrival in 1915 several days were spent in watching the birds and actual counts and various estimates were made of their numbers, all of which showed that the increase in the colony during the last thirty-five years had been very small.

After nesting commenced, a series of photographs was secured and a few eggs collected. Then the island was not visited for a month to allow the birds to hatch their young undisturbed, but on again landing late in July very few adult birds could be found and

no young were seen while the presence of a Short-eared Owl upon the island seemed to explain the cause. The Owl had apparently destroyed all the young and most of the adults as several subsequent counts showed only thirteen birds remaining.

The other colony mentioned by Mr. Nelson (at Kegiktoiwik) I did not visit. A man was engaged to take me there but the breaking of the propeller shaft on his boat forced me to give up the trip as no other boat could be secured. Inquiries were made of a trader who sometimes stopped at the village and it was learned that a few "small gulls" (perhaps Aleutian Terns?) nested there. So far as I know these are the only breeding colonies of this species on the Alaskan coast.

Mr. Nelson states that a few Violet-green Cormorants nest near St. Michael but they are never very numerous. No cormorant, of any kind, was seen during my stay there and I doubt if any now breed there.

It is probable that the greatest decrease in the abundance of bird-life in this locality is to be found in the members of the order Anseres. While ducks, as a whole, were quite abundant, their numbers were much less than at the time Mr. Nelson's observations were made.

When the ice first breaks up in the bay flocks of Red-breasted Mergansers, Scoters (*O. americana*) and Pacific Eiders are to be found congregated about the rocky projections of small islands, or resting and preening their feathers on large ice cakes about the entrance to the canal. The Eiders remain all summer and breed, but are confined to the strip of tundra bordering the bay and were never found very far back from the open water. They also are plentiful on Stuart Island. The Scoters all disappear after the first days in June and I never found any evidence of their breeding. The Red-breasted Mergansers also were not seen after the ice left the bay, but during August I obtained three or four half grown young, so a few still breed there.

Back on the tundra spring arrives earlier than it does about the bay. The ice breaks up in the tundra ponds and the snow nearly all disappears long before the sea ice goes out. A trip through the canal at the time of the "break-up" shows the small ponds to be filled with ducks of several species. The Pintail is most numerous and probably nearly, if not quite, equals the combined totals of all

other species. The Old-Squaw is also abundant and the Greater Scaup ranks third. All these species breed.

Other ducks are uncommon and I found few breeding. The Mallard was seen once or twice and one nest was found on June 9. I saw none of its plumage in any of the natives' feather ornaments. The Green-winged Teal is rare in spring but for a few days in August there was quite a flight and a number were shot. One of the rarest ducks at the present day is the Spectacled Eider. In 1914 I saw three in the canal on June 8 and the remains of one at the army post the previous day. During 1915 the species was met with but once,—seven birds being seen on June 5. No evidence of its breeding was found.

During the migrations in spring and fall geese occur in some abundance I was told, and by the end of August a few flocks were beginning to pass over, while after September 1 they were seen almost daily. They were largely made up of White-fronted Geese and this species also breeds in very small numbers. The only Snow Geese seen was a flock of five on June 19. I imagine the Emperor Goose occurs at times in the fall but I have no positive evidence of it.

The Whistling Swan is now very rare about St. Michael. Many people told me they had occasionally seen them in spring or fall but very few had ever shot one. Some maintained that they nested "back in the hills" (a breeding ground assigned to all species whose nests they had never seen). If they nested anywhere near St. Michael, some would surely have been seen, but I did not meet with a single swan at St. Michael or in any part of Alaska.

The Little Brown Crane still occurs rather commonly and breeds. Late in August and early in September small flocks, probably migrants, were seen flying over, often at a great height. The largest number seen in any one flock was fourteen.

The Northern Phalarope was the only species of this family found breeding at St. Michael where several of their nests were found, usually in the wetter parts of the tundra. Eggs were found from June 5 to 16 and downy young June 19. Many adults were found to be in full moult on July 13, and from July 26 to August 11 specimens in full winter plumage predominated.

The most numerous sandpiper on the tundra is the Western but

the Long-billed Dowitcher is also quite abundant. The Pectora Sandpiper I found decidedly uncommon during the breeding season while the Red-backed was not found at all until after the fall migration began. The first Red-backed Sandpiper seen was an adult in worn plumage taken July 18 and soon after the species became common.

Wilson's Snipe is uncommon. About three pairs were breeding somewhere near St. Michael,—the males, being frequently seen and heard "winnowing," which attracted attention to the species and gave the impression that it was rather common.

Toward the end of July the Aleutian Sandpiper became very common about the rocky parts of the beach. Early in August they all disappeared and no more were found during my stay. All the specimens collected were adults in nuptial plumage.

Dr. Bishop tells me he found many in September nearly all of which were immature. Mr. Nelson gives the time of their arrival and departure as the last of July until the middle of October, so there are probably two distinct northward movements or migrations of this species,—an early one composed of adults and a later one of young birds.

The Pacific Godwit is much less common during the summer than at the Yukon Delta but during August becomes abundant.

The Hudsonian Curlew and Black-bellied Plover are uncommon, a stray pair only being seen now and then. The Golden Plover was not seen at all. As Mr. Nelson found this to be "one of the commonest breeding waders," and in view of its scarcity on our eastern coast in recent years, it seems not improbable that the species may be nearer extermination than is generally realized. The Pacific Golden Plover was met with three times. Once on June 30 when a bird in breeding plumage was seen and secured and on August 15 and 22 when two birds, doubtless migrants were seen, one of which was secured each date.

The Black Turnstone is a common bird especially on rocky beaches,—the Ruddy Turnstone less so. In one of these rocky locations a single Wandering Tattler was seen on June 10.

About the first of August a very noticeable migration of shore-birds takes place about St. Michael. The great expanse of mud flats left by the falling tide along certain parts of the canal, and

which had previously been used as resting places by the gulls, suddenly became the resort of hundreds of sandpipers. Long-billed Dowitchers, Pectoral and Red-backed Sandpipers predominated with constant additions of Western Sandpipers as the young became grown and the birds commenced to flock. Phalaropes were sometimes seen and once or twice flocks of Curlews. Here the Pacific Golden Plovers mentioned above were found, and, in one place, a very large flock of Pacific Godwits (apparently all young birds) were present for several days.

As I was passing these flats in my boat on August 4, I was surprised to see four Knots feeding together and secured all. While Turner apparently found this species at St. Michael, Mr. Nelson secured but a single specimen during his residence there. Later in the day a flock of fifteen or more birds which I thought were this species were seen at some distance, feeding on a mud flat, but the mud was too soft to walk through and after several attempts to approach them I was forced to give it up. On August 8 I again encountered two parties of two birds each, and secured all four. Later the species proved to be quite common.

During the summer of 1914, Willow Ptarmigan were numerous and I was told they were very abundant during the fall and early winter often coming about the houses. In the spring of 1915 and throughout the summer they were scarce and very few were seen. This condition was not entirely local as reports of their rarity were heard from many other parts of the coast. It is possible that, when they have increased beyond a certain point, an epidemic of some sort thins their ranks and thus keeps the species within the limits prescribed by nature.

Hawks are uncommon in this locality during summer. One or two which I did not identify were seen at times and during August immature Marsh Hawks were noted a few times and one taken.

The Short-eared Owl was the only species of this family encountered during the summer. They were quite numerous upon the tundra, being fully as common as I have ever found them to be in more southern parts of their range. Both the Snowy and Hawk Owls occur in fall and early winter according to the statements of several residents, but neither were seen by me.

In the A. O. U. Check-List a form of the Great Horned Owl is

credited to this locality. The range assigned to this subspecies (*Bubo virginianus algistus*) is the "coast region of northern Alaska from Bristol Bay and the Yukon delta northward." This is a stretch of country, that, with the exception of two or three comparatively small areas, is without trees of any kind and is, therefore, wholly unsuited to the requirements of this species. The few birds that occur, do so in fall or winter, and are clearly migrants or stragglers from the wooded regions. Along the Yukon, in the interior, are heavy forests where Horned Owls of some form almost certainly occur. The A. O. U. Committee do not, however, include this vast territory within the range of any subspecies. Both Oberholser and Ridgway refer specimens from Nulato to *lagophonus*, — a form which the A. O. U. Committee does not consider as separable from *saturatus* but, on the other hand, the range of *saturatus* is given only as including Ft. Yukon in the interior of Alaska.

If all the birds from the interior are *saturatus*, then *algistus* must be restricted to the small wooded spots about the head of Norton Sound (and possibly the Kowak River), during the breeding season. This is a very small area to produce a distinct form of a species with the solitary and unsociable habits of the Great Horned Owl, but it is certain that it does not inhabit, and breed upon, the low marshy tundra that makes up the "coast region of northern Alaska."

Woodpeckers, like most of the owls, occur in fall or early winter as stragglers or migrants from the wooded regions. While passing through the village on September 4 a familiar note arrested me in my walk and caused me to turn aside. Two Downy Woodpeckers (*nelsoni*?) were perched on the roof of a building where they remained but a moment or two before flying away toward the southeast. I fear they had many weary miles to cover before reaching another resting place.

The Northern Raven is uncommon near St. Michael and was the only member of the family observed. Not far from the two volcanic hills previously mentioned a single Raven (probably the same individual) was seen a number of times. This bird and one or two others observed in northern Alaska and Siberia were exceedingly wary; this trait forming a striking contrast to the boldness of the Unalaska birds.

Song birds are represented by few species and none are character-

ized by very great musical ability. The simple song of even the most humble performer is, however, often a source of much pleasure.

The sweetest song is probably that of the Alaska Longspur and this is also the most abundant song bird. The males in their showy nuptial dress are the most conspicuous objects on the tundra in early summer, while the duller colored and less obtrusive females are equally numerous but easily overlooked. After the young can fly and their parents have moulted into winter plumage, troops of these gay birds can often be found in patches of weeds about the houses. Here they will be flushed day after day until, toward the last of August or early in September, we suddenly miss them from their accustomed places and discover they have slipped away, unnoticed to take up a brief residence in a land less wind-swept and desolate.

Another bird frequently seen about the village, but only in early summer, is the Gambel's Sparrow. Perched on some house-top the males pour forth their songs for a short time during June. Later we find them among the alders where they nest and soon after the young are out of the nest all leave for the south. Among the alders and willows we find other birds. The shy Fox Sparrow is sometimes seen and the Western Tree Sparrow is found in almost every clump. The roving Hoary Redpolls with their darker colored cousins, the common Redpolls (in this locality, however, less common than *exilipes*), flit about from bush to bush or roam about the country in loose flocks, visiting the village and often feeding about the door-step, but returning to the alders to build their nests and hatch their young. Sometimes they nest in other situations and I was shown one nest, built in a small bush in a dooryard in the village. The nest was finished and eggs laid about ten days before my arrival.

Two species of swallows are common at St. Michael during the summer. The Tree Swallow is most numerous and nests in any available niche or crevice about buildings. Mr. Nelson has written that this species was only a migrant when he resided at St. Michael. The increase in the number of buildings in the village offers many suitable nesting sites which the swallows have not been slow to use. This species, with its graceful flight, attractive plumage, and not unpleasant twittering notes makes a welcome addition to the

summer bird life of the region. The Barn Swallow is not so common as the above species, probably because suitable nesting places are scarce. I have found their nests in empty houses but most of the birds about St. Michael build in or upon the unused river steamers that are drawn up on the shores of the bay.

None of the warblers were seen by the writer in this locality and the Alaska Chickadee, Kennicott's Willow Warbler and Siberian Red-spotted Blue-throat (species obtained by previous observers in the region), were not met with. The Alaska Yellow Wagtail was abundant and on August 8 a single Pipit was seen.

The shy Gray-cheeked Thrush is a summer resident of the alder thickets from which his whistled call note or clear ringing song may often be heard. This is the only thrush I observed but many of the residents state that a stray Robin or two is occasionally seen in spring.

In closing, I wish to acknowledge my appreciation of the interest shown in my work by all with whom I came in contact while in the north. To the officers at the Army Post,—Lieuts. Jepsom (commanding) and Rentfro, and Dr. L. T. Ferenbaugh,—I am especially indebted; not only for placing at my disposal facilities for visiting localities that would have been inaccessible without their kind assistance, but also for the pleasure of their company on several of my excursions about St. Michael, as well as for many little acts of thoughtfulness that added greatly to the pleasure and comfort of my stay there. Several of the enlisted men at the post also rendered valued assistance in handling my boat or procuring specimens, especially Sergt. Loftin who frequently accompanied me on trips afield.

THE LABRADOR CHICKADEE (*PENTHESTES HUDSONI-
CUS NIGRICANS*) IN A SOUTHWARD MIGRATION.

BY CHARLES W. TOWNSEND, M. D.

IN my last trip to the Labrador Peninsula, I collected in the forested region at the head of Shekatika Inlet, two Hudsonian Chickadees, whose plumage was so dusky that they seemed worthy of being classed as a separate race. I described them in 'The Auk' of January, 1916, under the name of *Penthestes hudsonicus nigricans*. In October, 1916, there began a migration of Chickadees of the Hudsonian species into the region about Boston that soon attained large proportions. I have had the opportunity of examining eleven specimens collected in this migration, as follows: four taken by myself at Ipswich, one at Belmont and one at Arlington; one taken by Dr. W. M. Tyler at Belmont and given me; one taken by Mr. J. L. Peters at Harvard; one in the Museum of Comparative Zoölogy at Cambridge from Lexington, and two kindly loaned me by Mr. W. DeW. Miller from the American Museum of Natural History; one of these was taken in Staten Island, one at Plainfield, N. J.

All of these eleven specimens are plainly referable to the Labrador subspecies, *Penthestes hudsonicus nigricans* and not to *littoralis* nor to true *hudsonicus*. It had been generally assumed that the race to which this unusual migration of Northern Chickadees belonged was the Acadian, and it had been so reported in the January, 1917, number of 'The Auk.'

Here, certainly, is a curious and interesting state of affairs. A new race, discovered in Labrador in 1915, appearing a little over a year later some seven hundred miles to the south in Massachusetts. It is not often that the discoverer of a new race in a distant land is so fortunate as to have that race return his visit!

The migration this winter has been an unprecedentedly large and extensive one for any form of the species. It has extended throughout southern New England and reached Long Island, Staten Island and New Jersey.¹

¹ See paper in this same issue by H. W. Wright.

In order to reach these southern regions, the Labrador Chickadees must have flown by and over the resident Acadian Chickadees of Nova Scotia, New Brunswick and the northern parts of Maine, New Hampshire and Vermont. It would be surprising if some of the latter race should not accompany the Labrador form to the south or come independently, as has been the case, as I shall show, in previous migrations, but all the specimens I have seen, taken this winter, belong to the Labrador subspecies.

It is a familiar gibe that some races cannot be named unless one knows the locality where the specimens were taken. Not so in the case of *nigricans*. That the recognition of this subspecies even in the field is possible, I have demonstrated, not only by my own observations, but by those of others. The differences between *P. hudsonicus hudsonicus* and *P. hudsonicus littoralis* on the other hand are so slight that it would be difficult if not impossible to distinguish them in the field. *Littoralis* is slightly smaller and slightly browner than *hudsonicus*. The difference in size is the more important but can only be definitely discovered by measurement.

The Labrador Chickadee is distinguished from the Hudsonian and the Acadian forms by being distinctly dusky instead of brown on the back. The mouse-colored cap is generally clearly differentiated from the back which is not so dark. This cap is noticeable in life and has been referred to by several observers independently. In size, the Labrador Chickadee is intermediate between the other two. Its bill is rather heavy, like that of the Hudsonian, but about as short as that of the Acadian. It is probable that intergrades between these three races exist whose exact status is in doubt. This is certainly the case between *hudsonicus* and *littoralis*.

My late July specimens from Labrador are indistinguishable from specimens taken in Massachusetts in December, and it is probable that they had already moulted into winter plumage. The first winter and later winter plumages in Hudsonian Chickadees are practically indistinguishable. A study of specimens of the Acadian Chickadee taken at all seasons of the year, shows browner upper parts and, with rare exceptions, no distinction in the form of a cap. The flanks are, as a rule, browner than in the Labrador or Hudsonian form. Birds in juvenal plumage are slightly darker above.

I have, on several occasions, placed a series of specimens of *nigricans* taken in Massachusetts this winter, with one taken in Labrador in July and with several of *littoralis* taken in Nova Scotia in winter side by side with their backs up before various members of the Nuttall Ornithological Club. No one has had any difficulty in at once picking out the specimens of *littoralis* from those of *nigricans*.

The Acadian Chickadee is the resident race in northern New England as it is in Nova Scotia and New Brunswick. All of Mr. Brewster's Umbagog specimens are of this race; and several specimens sent me from the Victoria Memorial Museum by Mr. P. A. Taverner taken in the Gaspé Peninsula, are also plainly the same.

I have studied nine Massachusetts specimens of these northern Chickadees taken in previous winter migrations. Six of these are in the collection of Mr. Wm. Brewster, one from Mr. H. M. Spelman, one from Mr. J. L. Peters and one from the Museum of Comparative Zoölogy. Five appear to be Acadian, and four Labrador Chickadees. The records and measurements of all are given in the following table, which also includes those of the eleven specimens of *nigricans* taken this winter. For comparison, I have given the measurements of two specimens of *nigricans* taken in Labrador, two of *littoralis* taken in Nova Scotia and three specimens of *hudsonicus* from Mackenzie and Alberta.

I am greatly indebted to Mr. Wm. Brewster and to Mr. Outram Bangs for the opportunity of examining specimens and for their kind assistance in this study.

<i>Penthestes hudsonicus nigricans</i>		tail	tarsus	culmen depth of bill	
C. W. T.	1420 Shekatika, Labrador, type July 23, 1915	66	15	8.5	4.5
"	1421 " " " "	62	14	8.0	5.0
"	1466 Ipswich, Mass. Dec. 10, 1916	61	14	9.0	5.0
"	1467 " " " "	64	15	8.5	4.5
"	1468 Arlington, " " 15, " "	65	14	9.0	5.0
"	1469 Belmont, " " 15, " "	55	15	8.0	4.5
"	1470 Ipswich, " " 17, " "	60	17	9.5	5.0
"	1471 " Jan. 1, 1917	62	14	9.0	4.5
"	1472 Belmont, " " 10, " "	60	15	9.0	5.0
J. L. P.	1722 Harvard, " Nov. 8, 1916	54	16	9.0	4.5
M. C. Z.	79642 Lexington, " " 9, " "	62	16	9.0	4.0
A. M. N. H.	New Dorp, Staten Isl. Jan. 14, 1917	61	16	9.0	4.5
A. M. N. H.	Plainfield, N. J. Dec. 31, 1916	59	14	8.5	4.0
W. B.	9685 Belmont, Mass. Dec 31, 1884	62	14	9.0	4.0
"	26270 No. Adams, Mass. " 19, 1889	62	14	9.0	4.5
"	30310 Mt. Greylock, " " 16, 1889	59	14	8.5	3.5
J. L. P.	438 Harvard, " Nov. 5, 1913	67	15	9.0	4.5
	Average	62	14.8	8.8	4.5
<i>P. hudsonicus littoralis</i>					
C. W. T.	606 Annapolis, N. S. Dec. 28, 1883	60	12	9.0	4.0
"	608 " " " "	60	14	8.5	4.5
W. B.	34 Concord, Mass. Oct. 30, 1870	58	14	8.0	3.5
"	25621 Arlington, Mass. Oct. 19, 1889	63	13	9.0	4.5
"	30309 Mt. Greylock, " Dec. 16, 1889	64	15	8.0	4.0
H. M. S.	86 Cambridge, " " 31, 1880	61	14	9.0	4.0
M. C. Z.	63986 Belmont, " Nov. 20, 1913	62	16	9.0	4.0
	Average	61	14	8.6	4.0
<i>P. hudsonicus hudsonicus</i>					
M. C. Z.	46179 Fort Liard, Mackenzie	65	16	9.5	5.0
"	46975 Fort Simpson	68	16	10.0	5.0
V. M. M.	2294 Edmonton, Alberta, May 7, 1897	69	14	10.0	4.5
	Average	67	15	9.8	4.8

LABRADOR CHICKADEE (*PENTHESTES HUDSONICUS*
NIGRICANS) IN BOSTON AND VICINITY IN
THE FALL OF 1916.

BY HORACE W. WRIGHT.

AGAIN after an interval of only three years another extensive southern migration of *Penthestes hudsonicus* into New England has occurred. The subspecific type of the birds of this incursion, Dr. Charles W. Townsend informs me he will discuss in a paper which he is preparing for 'The Auk.' Briefly it may be stated that he finds all the birds, which have been collected in this latest migration and have come under his examination, to be of the *nigricans*¹ type and not the *littoralis* type. My paper on the incursion of *hudsonicus* in 1913,² upon such testimony as is presented in the paper, assumed the type of that incursion to be *littoralis*. It is not the purpose of this brief article to assist in determining the subspecific type of the visitants in either migration, but to indicate by records obtained that the southward movement of *hudsonicus* has been general and as extensive, if not, indeed, more extensive than the migration of 1913. With the records which I have obtained I am enabled to unite those of a number of other observers, who have kindly coöperated to further the purpose in view.

My own records are: Mount Auburn Cemetery, Cambridge, October 29, one bird; Middlesex Fells, Melrose, November 7, two birds; 25, five birds; Belmont, November 9, nine birds; 20, eight birds; December 9, eight birds; January 1 and 3, 1917, three birds; Arnold Arboretum, Boston, November 16, three birds; December 5, twelve birds; January 8, two birds; Jamaica Plain, November 23, one bird.

Other observers' records are: Mr. William Brewster, Concord, October 7 and 12, one bird; 22, three birds; 23 and 31, one bird; November 3, one bird.

Dr. Charles W. Townsend, Ipswich, November 5, three birds;

¹ Auk, vol. XXXIII, Jan., 1916, p. 74.

² Auk, vol. XXXI, April, 1914, p. 236.

December 10, seven birds; 17 and January 1, two birds; Belmont, November 26, five birds.

Mr. James L. Peters, Harvard, November 8, one bird.

Miss Mabel P. Cook, Lexington, November 9, one bird.

Miss Annie W. Cobb, Arlington, November 11, two birds; Arnold Arboretum, Boston, December 1, twelve birds; Ipswich, December 2, ten birds.

Dr. Winsor M. Tyler and Dr. Walter Faxon, Belmont, November 15, twelve birds; 19, eight birds; 26, two birds; December 9, eight birds, 11, four birds; January 10, two birds; Dr. Tyler, Ipswich, December 31, one bird; Lexington, January 7, one bird.

Mr. C. J. Maynard, Waltham, November 18, five birds; 25, two birds.

Mrs. Edmund Bridge, Middlesex Fells, Melrose, November 19, nine birds; Arnold Arboretum, December 9, two birds; Walden, Concord, January 29, four birds.

Mr. Harold L. Barrett, Arnold Arboretum, November 19, 26, December 3 and 10, three to five birds; December 24, eleven birds; 31, seven birds; January 1, 1917, five birds; 7, four birds; 21, ten birds; 28, four birds.

Miss Viola E. Crittenden, Beverley Cove, Beverley, November 26, five birds; December 3 *et seq.* to January 7, two birds; 13, none.

Dr. John B. May, Cohasset, November 27 *et seq.* to January 5, four birds.

Dr. Walter Faxon, Granny Hill, Lexington, November 18, 22, 29, December 2 and 8, three birds; December 10 and January 7, one bird; Belmont, December 3, eight birds.

Mr. Campbell Bosson, Belmont, December 2, three birds.

Judge Charles F. Jenney, Westwood, January 6, 1917, two birds.

Miss Helen Granger, Chestnut Hill, Brookline, January 23, one bird.

The above enumeration indicates that twenty-eight birds have been noted by me in five different localities, while in 1913, twenty-five, and possibly thirty, individuals were recorded in twelve different localities, my outings extending over a wider range of country during the earlier incursion, which indicates that these Northern Chickadees have been in larger companies during the migration of 1916. Several of the records of other observers confirm this

view. The largest company observed in 1913 consisted of nine individuals on the Belmont lands. In this second incursion twelve birds have been reported in the Arnold Arboretum, twelve at Belmont, ten at Ipswich, and nine in the Middlesex Fells. In each instance these numbers were assembled essentially together, although on some occasions seen in scattered near groups.

The crest of the wave of the 1916 migration in this vicinity seems to have been between November 9 and December 10; earlier records are of one to three individuals only, while my later records fall to two or three individuals respectively in the first week of January, 1917, three birds on the Belmont lands and two birds in the Arboretum. Mr. Barrett, however, furnishes a record of ten birds seen in the Arboretum, January 21, after having obtained smaller records on previous dates, and on January 28 he found but four birds.

In general it may be said that these Hudsonians of the migration of 1916 have been much more shy than the birds of the 1913 migration. I have seen none at as near range as I viewed many in the former migration. Then they were accustomed to be feeding in the sunlight and frequently upon stalks of golden rod and aster, allowing very near approach and as full scanning as the observer desired to make. During this migration of 1916 the birds have been very elusive and kept themselves very largely in dense shade either in the cedars, hemlocks, or pines, as the growth might be, or upon the ground underneath from which all strong light was excluded. The birds have also been very restless and suspicious upon approach, leading the observer a considerable chase sometimes to follow them up. This has made difficult the determination of their particular coloration. So "a bird in the hand" rather than "in the bush" has been required for an examination adequate to determine the subspecific type. Happily, Dr. Townsend with the assistance of others is rendering this necessary service. The call-notes, however, are always *specific* and distinct from those of the Black-capped Chickadee. So an identification of the species is readily made.

A letter from Mr. George L. Kirk of Rutland, Vermont, to Dr. Townsend, which the latter has kindly placed in my hands with the privilege of quoting, is of so much interest as bearing on this 1916

migration that it is herewith presented almost in full with the author's permission. Mr. Kirk writes under date of January 12, 1917: "Your letter in reference to the Acadian Chickadee came to hand this morning. . . . Unfortunately I did not secure any, nor have I shot any of these Northern Chickadees during the two years I have been collecting bird skins. I very much regret that I cannot supply you with material for examination in preparation for your paper, especially in view of your statement that the birds which visited us in the fall of 1916 were probably the form *Penthestes hudsonicus nigricans*, but the best I can do is to give you some idea of their abundance last fall.

"For some reason the birds were abnormally shy at this time. Heretofore those I have seen were so tame that one could approach within five or six feet, if they happened to be feeding low, but this year they were constantly on the move and seemed to leave the vicinity every time they realized a hunter was near. . . .

"The Acadian Chickadee is said to be found rather regularly in northern Vermont, but eighteen years of careful observation have convinced me that it is rare in this part of the State, even in the winter season in the heavy spruce woods of our mountains. With the exception of that season, three or four years ago, when you had a visit from them in Massachusetts (I have not my notes at hand this minute to look up the date), I have seen only an occasional single bird until 1916, when they were much more abundant than during the flight previously referred to.

"During the week of October 22, 1916, I was in the mountain woods every day hunting partridges. The Acadian Chickadees were then confined almost entirely to spruce timber above 1800 feet altitude and were so abundant that their notes (so different from our Black-cap when the two are heard together) were heard everywhere. They kept to the thick evergreens so persistently that it would be difficult to estimate how many were seen or heard each day, but they were as abundant as any species of bird about at that time. The troops in which they travelled seemed to keep by themselves and not mingle to any extent with the native Chickadee. The following two weeks the birds were seen in the hardwoods of the lower country, and the writer and friends who are interested in birds saw and heard them a number of times. After

November 20, they apparently had passed south, for, although I have been in the woods for a considerable time once each week since that date, I have heard the notes of only two stragglers. . . .

"This has been the best season in many years here for winter birds. Redpolls, Snow Buntings, Pine and Evening Grosbeaks, and White-winged Crossbills came unusually early and are abundant."

Mr. Kirk in a subsequent letter states that he saw one of the Northern Chickadees on January 14 at Rutland.

Mr. Richard M. Marble of Woodstock also gives interesting Vermont testimony in a letter received from him, in which under date of January 14, 1917, he states, "An Acadian Chickadee has been a visitor to Mr. Fred Dana's feeding station since November, and possibly before," and he adds, "also a wintering White-throated Sparrow. Doesn't this locality seem a little far north for that bird to be wintering? Undoubtedly a home-made feeding station, which is always well supplied with food, has much to do with his stay. A Junco is almost always with him. We have all the winter visitants with us now and in fairly good numbers. I see almost every day in some large box elders on our lawn three Evening Grosbeaks. Pine Grosbeaks, of which there seem to be more adult males than usual, are quite common, as are both Crossbills and Redpolls."

In a later letter Mr. Marble writes: "If one is able to distinguish between the *nigricans* type, as described by Dr. Townsend, and the *littoralis* type by the brown on the sides, the Northern Chickadee which is wintering with us is unmistakably *littoralis*. The brown on its sides is very red and conspicuous. It also seems to me that the back shows quite a brownish tint." May not this Woodstock bird be a northern New England resident, and, therefore, as such definitely *littoralis*, attracted to the feeding station in its wanderings, and remaining a constant visitor because so well cared for?

As indicating the time of the southward movement reaching northern New England, it may be stated that before my departure from my summer home at Jefferson Highland, New Hampshire, October 11, I had seen several individuals in that locality. The records are one bird on the first day of the month, three on the fourth day, one on the fifth, and one on the tenth. These records

probably represent as many different birds on account of the various localities and separation of time in which they were seen. No *hudsonicus* had been noted earlier than October 1. Its appearance was upon the first morning of heavy frost, the mercury registering 30° with ice skimming the puddles in the road. A considerable migratory movement had occurred in the night, bringing White-crowned Sparrows and Ruby-crowned Kinglets with an increase of White-throated Sparrows, Juncos, Myrtle Warblers, and Olive-backed Thrushes. White-winged Crossbills and Pine Siskins had already been much in evidence about the Highland. My assistant, Mr. E. D. Parker, in a recent letter informs me that he heard and saw some of these Northern Chickadees about the cottages on the Highland at various times up to the middle of December.

During the week of October 22, Mr. Kirk states that while he was in the mountain woods, he found the species "so abundant that their notes were heard everywhere." The rapid progress of individuals southward is indicated by Mr. Brewster's records at Concord, Massachusetts, which range from October 7, when the first bird was noted, and October 12, when the second bird was noted, to the 22d day, when three birds were seen "pecking at gray birch seed-cones." And Dr. Tyler informs me that he recorded on October 29 and again on November 3 in his notes respectively for those days that he heard the calls of several Chickadees flying southward and for a moment alighting in a tall white pine tree, which he was almost certain were the notes of *hudsonicus*, identical to his ear with the minor notes of the Acadian, as heard on several occasions in the White Mountains and in 1913 when for a few weeks the species was common in the Boston region. By the middle of November, or thereabouts, the birds seem to have been most numerous in this vicinity and not to have diminished in number, perhaps, until about December 10, after which date fewer individuals were in evidence.

And as indicating the much farther southward movement of the migration of *hudsonicus*, Mr. H. H. Cleaves in a letter to Dr. Townsend states that he saw four individuals at Staten Island on December 5 and that these birds were first seen on December 2. Dr. Townsend has later received from the American Museum of Natural History a specimen taken at Staten Island on January

14, 1917, and one taken at Plainfield, New Jersey, on December 31, 1916. Other southern records in this 1916 migration, which have been already published,¹ are of one bird on November 6 at Rhinebeck, New York, and one on November 13 at Hewlett, Long Island.

Golden-crowned Kinglets have proved to be the closest companions of these Northern Chickadees on many occasions. Indeed, they seem to be their natural associates. Black-capped Chickadees are rather their incidental companions, with whom they occasionally come in touch, but do not habitually move. Casual associates on the cedar-grown pastures of Belmont Hill were a Palm Warbler on November 9 and December 9, a full-plumaged male Cape May Warbler and a Ruby-crowned Kinglet on November 20. The individuals which have come under my notice have usually been quite silent, giving their characteristic calls infrequently, and so revealing their presence but little. On this account it is quite probable that more individuals have been present on some occasions than have been enumerated and the numbers actually recorded fail to adequately express the size of the migration. They may be regarded, however, as serving to suggest its extent and for illustration.

¹ Auk, vol. XXXIV, Jan., 1917, p. 91.

ORNITHOLOGY AT ST. MARK'S.

BY J. A. FARLEY.

ORNITHOLOGY at St. Mark's has nothing to do with the pigeons that flock to be fed in the sunny piazza in front of the ancient church. Nor does it apply to any birds, alive or dead, within the resplendent edifice. It has reference only to the remarkable mosaics of bird-life, done by an unknown mediæval artist, which may be seen just inside the glistening portals of the building. Ornithology at St. Mark's, therefore, means the pictures of birds that appear among the other rich Byzantine mosaics in the ceiling of the atrium of the venerable shrine of St. Mark the Evangelist. Most of these mosaics are of the thirteenth century and are thus among the earliest in San Marco, although exceeded in point of age by the famous eleventh and twelfth century work of the golden interior of the Venetian basilica.

The Old Testament story through Genesis and Exodus is told in the mosaics of the atrium; and their chief natural history lies in the series that illustrates the life of Noah. Most notable in this respect are the nine mosaics of the Flood. These are of the early thirteenth century. They may be seen on the under side of the arch that separates the main entrance of the church (door of St. Mark) and the cupola next to the Capella Zen. Arranged in tiers they show in the highest the building of the Ark, following the command of the Lord to Noah. In the tier next below the animals enter the Ark, by sevens and by pairs — the clean and the unclean. The four-footed creatures are grouped on the right; the crowd of birds are on the left. Among the latter are a number of representative Old World forms.

These bird-pictures are of deepest interest. The mediæval mosaicist (whether Byzantine master or Italian pupil), hampered though he was by his stiff art, did his work on the whole wonderfully well in respect to a truthful representation of nature. Furthermore, his art makes his remote age to live again — in a new and unexpected way. It appears that certain species of birds were as representative forms of wild life in the thirteenth century as they

are to-day. Birds as well-known now as then figure in mosaics made seven hundred years ago! It is hard not to speak in extravagant terms of the mosaicist who proved himself no mean naturalist (or at least observant student of nature) by portraying so faithfully the forms of wild life that he saw about him.

Conspicuous among these speaking likenesses appear two of the best known game birds of Europe which for centuries have afforded food and sport for man — the Red-legged Partridge, *Caccabis rufa*, and the common grey Partridge *Perdix perdix*. Not all of the bright, showy coloration of the Red-legged Partridge is pictured in the colored cubes of the mosaic, but the artist seized upon enough salient points of plumage to characterize the species completely. There is the striking, bold, black ring on the head behind the eye and the very evident row of transverse, black stripes on the sides and flanks, together with the white and brown quills of the wing. In spite of some minor faults, both of omission and commission, the species is exceedingly well-portrayed. Undoubtedly in the thirteenth century the Red-legged Partridge was as well-known a game bird and as much admired for its good looks as it is today. Small wonder that the artist took pains! Long, long before the Middle Ages, if report be true, this pugnacious fowl was kept for fighting purposes, like the game cock to-day, and tradition runs that the Emperor Alexander Severus enjoyed the sport.

The common grey Partridge — esteemed for the excellence of its flesh since the days of Martial — is as well pictured as the less succulent, red-legged species. Here again the mosaicist indicates plainly what is perhaps the best field-mark of the bird — the buffy head and throat and the contrasting, slaty, vermiculated breast. The characteristic cross-bars on the grey sides are strangely omitted, to be sure, but the narrow, whitish, linear streaking on the brown wings (another good diagnostic feature) appears plainly — though in a rudimentary way. Another good bird-portrait — broadly speaking — in spite of the relative failure as to details.

A third plainly portrayed game bird of Europe is the Pheasant. The handsome pair stand directly above the Grey Partridges and behind the Red-legged Partridges. The scarlet before and below the eye of the cock Pheasant is as well brought out in the mosaic as in any Dutch painting of still life. The rich orange of the

bird's back also is as well shown by the *tesseræ* as if done in pigment. A bird of long and famous history — and of early game law as well as myth — is *Phasianus colchicus*. The Argonauts brought him home along with the fleece and other spoil from the banks of the river Phasis in Colchis where in the swampy woods that border the stream the bird may be found to-day "as wild as a hawk" — in strong contrast to the semi-domesticated fowl of English covers. It is not impossible that this native of Asia Minor was introduced into Europe a dozen centuries before Christ. Certain it is that the Pheasant was naturalized at a very remote age to the west of its original habitat. It was well-known in Italy in the comparatively recent period of the Middle Ages, and was a table-bird in England before the Norman Conquest — as at Waltham Abbey where *unus phasianus*, as the substitute for two partridges, was permitted to the canons by Harold's bill of fare. Very likely the Romans brought the bird to Britain for they sometimes naturalized "strange animals" in the countries they conquered.

Still another very well-known food-bird of the Old World (highly esteemed for the table in the days of Moses and ever since) which if not "as big as life and twice as natural" is nevertheless so vividly pictured that even the tourist who runs may read, is the Migratory Quail, *Coturnix coturnix*. It is impossible to fail to identify this little, plump, brown pair, with their buffy breasts and variegated backs, as the Quail of Holy Writ. Strange indeed if the artist had forgotten in his feathered throng at the door of the Ark a bird so famous in Biblical story. Ranging over such an enormous area as Europe, Africa and much of Asia, the Quail was as well-known to the nations of antiquity as the Eagle and the Crane. Well-named "Migratory" it vies with the Swallow in crossing seas, deserts and lofty mountain chains.

The trusting expectant air with which these little, obedient fowl look up into the face of Noah as they await their turn at his hands is very naïve.

It should be observed that the bills and the feet of the Quail are red — which is an ornithological inaccuracy. But it will be noted how often in these mosaic-pictures red inaccurately appears on foot or bill. It is evident that the mosaicist deliberately availed himself of the vivid color (whether right or wrong) as the best way

of showing plainly these small and relatively insignificant parts of a bird. Similarly, various birds which are not entitled to it are decorated with a white eye-ring to bring out an otherwise indistinct or else wholly unobvious eye.

The central figure of the whole mosaic is of course Father Noah himself as he carefully puts into the Ark his pair of Peafowl. These birds are most beautiful. The splendid purple of the neck of the cock contrasts vividly with the green of the hen. As the Byzantine symbol of eternal life the Peacock is naturally the first bird to go into the Ark. The mosaicist is here at his best and with good reason. As the emblem of the beauty and glory of immortality, the lavishly-colored bird demanded special attention at the hands of the artist; and there resulted a finely drawn and colored picture as true to nature as to art. It is in the portrayal of this most magnificent of all birds that the man of the mosaics reaches his height as an artist of animal life. Like the Pheasant the Peacock is a bird of remarkable history. It was King Solomon's ship of Tarshish (or else a craft of King Hiram's) — the first "East India-men" of which we have information — that brought this native of Indian forests over the old trade route from the East. This importation of Solomon's into Palestine is the earliest record of the bird for the Mediterranean regions. Alexander the Great, however, is commonly thought to have introduced the resplendent fowl into Europe.

As would be expected, some of the more striking forms of cosmopolitan, water-bird life did not escape our mediæval artist's eye. His [correctly] red-billed, slaty Gallinule or Moorhen (one of the most familiar British wild birds of to-day and with closely-allied forms in America and Africa) is well depicted save for its red legs which artistic violation of avian proprieties has already been explained and condoned.

Another extremely well-known water-bird of wide distribution is the Merganser. Here again the artist has achieved an ornithological success — within limits. His pair of fish ducks have the crest and the toothed bill of their kind. Thus the strongly-marked form is extremely well-characterized. But while all-sufficient as to generic details which point unmistakably to *Mergus*, the crude coloration does not at all "favor" the striking and beautiful *M.*

serrator of the Northern Hemisphere. Save for their long crests there is nothing about these dull nondescripts to show that they are Red-breasted Sheldrakes; and even their eyes are white instead of the proper merganser red. Yet it is this well-known water-fowl of Asia, Europe and North America that the artist undoubtedly had in mind to portray. Did he tire? Or was it another hand? Surely the hand that pictured the Peacock, the Pheasant and the Partridge was skilful also to portray the green-headed and rufous-chested Sheldrake which the red Indian of undiscovered America knew as well as the Italian of the Dark Ages and he, in his turn, as well as the Venetian of a later day — the peregrinating water-bird, here, there and everywhere in the northern parts of both hemispheres; the same today and yesterday, now and forever, one and indivisible — judging by its non-plastic past.

Conspicuous by reason of their stature in the crowd of birds at the Ark's door stand the Cranes. These are the common European species *Grus grus*. The blue, long-legged waders lack the details of their color-plan. Yet the white stripe running down the side of the neck appears; while more important still the touch of red on top of the head, indicating the semi-naked crown of *Grus*, shows that the artist was at least aware of this most diagnostic as well as striking external of the Crane. This most ancient form of bird-life was pictured at an earlier day than the mosaics of San Marco for Cranes appear on the frescoed walls of Dehr-el-Bahari. But even 3,000 years are made to seem but as yesterday by this Miocene bird.

The "clean" barnyard Poultry are strongly represented in the throng of birds. In bold relief against the dark side of the ship, as well by their bulk as by their color, are the seven, fat, white Geese, red-legged and yellow-billed. The adjacent group of the same number of Fowl are the usual variegated barnyard lot — this old-fashioned type the same in the thirteenth century as to-day. The rooster in the corner has a splendid comb, in shape, size and color true to life; but his equally well-conceived (from an artistic standpoint), impressionistic, five- or six-feathered tail is woefully unavian in that it lacks more than half the total number of quills required to complete the thoroughly orthodox, galline tail. Again the mosaicist's license — or his limitations. This tail has an

astonishing resemblance to that other weird one of six feathers worn by the famous rooster of the spire of the West Barnstable meeting-house on Cape Cod.

Facing the Cock and the Hens stand the Ducks. Like their vis-a-vis neighbors these "clean" fowl seem also to say; "We are seven." Among them the inevitable Mallard, so frequent in Italian art, with his green head and white neck-ring appears. The Common Fowl alone excepted, no bird of economic importance has so greatly profited man; and the story of the domestication of this stock-form — the original of the modern barnyard Duck — is lost in the dim beginnings of history.

One last barnyard bird is the discordant Guinea Hen. The pair are crudely colored, for their blue dress has only rudimentary white streaks instead of being properly polka-dotted. Their red combs and wattles are also ineffective. Yet the species is unmistakable. The pair stand at the feet of Noah, and, like the Quail, look up trustingly into the face of the builder of the ship.

Not all the birds in this striking mosaic-picture are identifiable. Doubtless the artist evolved certain "freaks." But in addition to various nondescripts the like of which were never seen on land or sea, there are a pair of long-tailed and red-billed green Parrots which are plainly the common Indian species *Palæornis torquata*. This is the "Ring Parrot" which became known to Grecian bird-fanciers as one of the results of Alexander's Indian campaigns. Linné, indeed, believed the historic bird to be the Javan species of the genus which he named accordingly *alexandri*. But this species never could have come in contact with the Macedonian king's sailors. Nor is there much reason to think, as some have argued, that *P. eupatria*, the Cingalese species of this long-tailed Parroquet group, was the famous green parrot with a red ring on its neck which Alexander's people brought back to Europe. The weight of opinion favors the common Ring-necked Parroquet of India — *P. torquata* — as the Alexandrine bird, and its generic name sets forth its antiquity.

It should be observed that the half neck-ring of *P. torquata* is rosy, not white as in the mosaic. But here again we must not make too deep scrutiny into the mosaicist's mutiny. Probably he found that on the arch overhead the relatively small neck-ring of the bird

would be brought out much better by white than by pink. As to the unparrotlike white spotting on the breasts of the birds, this may be explained by the guess that either a moulting or a cage-worn specimen was copied. The artist must not be taken too strictly. It is not assumed that he ever saw the Ring-necked Parroquet in its native Indian wilds. Let it suffice that we see in the mosaic undoubtedly the first representation in color of the ancient Parrot which Aristotle mentions and Pliny describes.

The flocks of the Ring-necked Parroquet swarming in the jungle are among the characteristic features of the East Indian landscape. Not only in forest but in town and village the harsh cries and abundance of the beautiful bird make it notable. It is the best known of East Indian parrots — this "Rose-ringed Parrakeet."

Among the remaining birds, more or less identifiable in the picture, are a small white pair which are probably meant for Doves; and a second Columbine pair, green-backed and black-billed, which seem to represent some species of the very edible East Indian green Fruit Pigeon group — *Treronina* — several species of which are found commonly in India today.

There are more birds in the lowest mosaic which shows the entry of Noah and family into the Ark. The family stand at attention while "the father of the flock" puts into the ship his last remaining birds. As Noah hands in two splendid yellow-eyed and black-billed Eagles, he turns and gazes full-faced at the spectator with a most imposing air of playing to the gallery. These Eagles are finely colored; and this is specially true of their yellow legs and feet and black claws which are depicted — one might almost say *drawn* — with painstaking care. As in the case of the Peacock the artist plainly took special pains with his Eagles as would be expected in the unscientific age that regarded the Eagle as the King of birds.

The naked tarsi of these birds indicate that they are Sea Eagles (*Haliaeetus*), although there is no reason to doubt that the "nobler" form — the Golden Eagle of the feathered leg — was a well-known bird of the period in Italy. Perhaps the mosaicist's zoological knowledge did not extend so far as tarsi, whether feathered or not. On the other hand the black bills of the pair indicate the genus *Aquila* of which the Golden Eagle, wide-spread in the Northern Hemisphere (but a rather "better" bird in America than in Europe),

is the fine type. Certainly, the artist in his benighted age had never heard of either *Aquila* or *Haliaeetus*. Hence this generical confusion is probably only another case of the artist's (like the poet's) license — a mixing, that is, not of metaphors but of characters.

On the ground, in front of and facing Noah, stand a pair of either Crows or Ravens — but incorrectly yellow-eyed. Behind these come a pair of Storks, red-billed and red-legged — as in life. The only unlikeliest thing about these familiar birds of tale and fable is the restricted black of their quills. In reality the extensive black on wing of the Common Stork, contrasting with the snow-white of the rest of the body and the red of bill and legs, makes the three-foot bird a conspicuous object in the Continental landscape.

Behind the Storks again come a pair of Pelicans. Tiring of the long wait incidental to the movement of such large numbers of living things these honest birds have calmly and comfortably squatted down on the *whole* foot — giving a restful touch to the whole proceeding — like the sensible, well-conducted "totipalmates" that the artist undoubtedly intended to portray.

Behind the patient Pelicans wait in their turn a pair of graceful, purple Herons, slim-necked and black-crested, which seem clearly referable to the African genus *Melanophoyx*.

In rear of all and vivid against their gold background stand a pair of good-sized slaty birds — black-headed, billed and footed, and to a less extent black-winged. These are the well-known and widespread Hooded Crow of Europe — *Corvus cornix*. They are well depicted save for the too-restricted black of the wing.

While this completes the tale of the birds of the Entry, it is hard not to glance at the extraordinary pair of smiling carnivora in the adjoining animal section which in the insistent hands of Noah are going into the Ark docilely like great, good-natured, fat, obedient Puppies which indeed they much resemble; nor at the tender face of Noah himself as he looks down fatherly at his puppy-like pets.

The story of Noah is continued on the opposite [right] side of the arch. We now see a submerged world, and the rain still comes down. But in the next scene behold the hungry Raven with greedy glittering eye as he feeds, oblivious of all else, on a floating carcass; while from Noah's hands, at a window of the ship, the gentle Dove (with most unavian wings it must be owned) is preparing in her turn to sally out.

In the next mosaic the Dove has returned, and there ensues the exit from the rainbow-encircled Ark. We see the enterprising Red-legged Partridge already perched at the corner of the roof of the craft; the Dove standing in the gutter, as if in doubt, yet preparing to fly; next an unidentifiable water fowl; and last (to complete this party of "early birds") the Guinea Hen. One final bird—an astonishing nondescript like nothing ever seen on sea or shore, with its red bill and foot, blue and white body, black crown and white crest—flies out into the very eyes of Noah who with a stern face is hauling out of the Ark's dark door the sprawling Lioness.

The series of Flood mosaics ends with Noah's sacrifice and the rapid dispersal of the animals which rejoicing in their recovered freedom are seen leaping away in every direction over the dripping rocks. It should be said in simple justice to Father Noah (and the artist) that throughout these Flood mosaics the captain of the ship wears the air of portentous gravity that well befits the individual upon whose shoulders rests the burden of the preservation of the entire animal life of the globe!

The Creation mosaics (with their accompanying Latin inscriptions) of the cupola that adjoins the arch of the History of Noah contain more natural history which it is hard to ignore. In the section that shows the Lord making living things, Peacocks appear; while in a little pool a pair of black, coot-like birds swim close to a bright green crocodile.

Most naïve is the mosaic of Adam naming the beasts. (*Appellavitque Adam nominibus suis cuncta animantia.*) The engaging Lioness upon whose head the First Man lays his hand has a most docile and half-human face—though with tongue far run out. That "one touch of nature makes the whole world kin" (or did at least before the Fall) is mirrored in the childlike complacency and the meek pride in her just-bestowed name of this artless beast. True indeed it is of this gentle Jane that she "bears her blushing honors" meek upon her.

The mediæval mosaicist rises nearest to greatness as an artist of the great out-of-doors in the beautiful mosaic that shows the creation of birds and fishes (*Dixit etiam Dominus: producant aquae reptile animae viventis et volatile super terram: jumenta et omnia reptilia in genere suo.*)

The picture is a crowded one — full of life and motion — kaleidoscopic — a phantasmagoria in fact of bird-life and fish-life — but with really good effective grouping. There is a whirl and a swirl of fishes in the blue sea below and a crowd of flying birds in the pale sky above. The sea swarms with brilliant-hued fish darting this way and that, the whole revolving around the central figure of a terrific sea-monster, bewhiskered and with plesiosaurus-like teeth — undoubtedly the earliest known representation of the sea-serpent (but agreeing wonderfully well with latter-day descriptions by truthful mariners) and as such peculiarly fit for mural decoration in maritime Venice.

The crowd of birds overhead in the breezy firmament complete the other half of this most beautiful mosaic. They are mostly seafowl although the inevitable Owl, so favored by mediæval artists, appears. There are the conventional Mallard, the Swan, Gulls white and pied, an Egret (for the Egret was as well-known in a state of nature — if not on woman's head-gear — in the thirteenth century as in a later Audubonian day), and various non-descripts — nearly all with legs and wings poorly, yes appallingly, drawn but the whole flock well grouped nevertheless and exceedingly full of life and motion. The breezy picture in short smacks of the sea, and the forgotten artist who made it surely knew his sea.

The simple beauty of the very early mosaics of Byzantine type in the atrium of San Marco appeals to all. Most original and often quaint they are undoubtedly among the most attractive of the earlier mosaics in the glorious building — as they are among the finest. But these Old Testament subjects take on an added interest when the fact of their origin is recalled. The mosaicists who executed them copied *Byzantine originals*. The illuminations in some early Bible of type similar to the Cotton Bible (if not in that ancient book itself) are evidently reproduced on the vaulting and the arches of the atrium. Even if not copied direct from the Cotton Bible of the fifth century, at least the designs are essentially identical with the paintings in that age-worn book.

Lord Macauley seems to have noted as early as any the likeness of the atrium mosaics to the miniatures in an early Bible. He has told of the pleasing impressions which he gained from his inspection of St. Mark's. "I never was more entertained by any build-

ing," he writes. "Everything carries back the mind to a remote age; to a time when Cicero and Virgil were hardly known in Italy; to a time compared with which the time of Politian and even the time of Petrarch is modern." As a Latinist he must mention the "very badness of the rhyming monkish hexameters;" while confessing that "there is something attractive to me" in this "very badness" — as there is also in the "queer designs and false drawing of the pictures." The final comment of this busy brain is of special interest. After "an hour spent in making out" the Biblical histories of the atrium, the historian concludes: "They amused me as the pictures in very old Bibles used to amuse me when I was a child."

The future peer of Rothley dipped into a vast number of books in his omnivorous-reading, boyhood days. It seems a safe inference that some at least of his "very old Bibles" were of the Cotton type or model which furnished in the thirteenth century the designs for the Genesis and Exodus mosaics of the atrium of San Marco — and doubtless also for general Bible illustration of the day.

CRITICAL NOTES ON THE EASTERN SUBSPECIES OF *SITTA CAROLINENSIS* LATHAM.

BY HARRY C. OBERHOLSER.

THE name *Sitta carolinensis carolinensis* is now applied to the White-breasted Nuthatch of the northeastern United States and southeastern Canada. Recent investigation, however, shows that the Florida form must be called *Sitta carolinensis carolinensis*; and since none of the names for eastern birds of this species is found to be available for the northeastern race, the latter must be given a new designation. Therefore the eastern races of *Sitta carolinensis* will stand as below:

***Sitta carolinensis carolinensis* Latham.**

[*Sitta*] *carolinensis* LATHAM, Index Ornith., I, 1790, p. 262 (America, Jamaica) (based principally on *Sitta carolinensis* Brisson, Ornith., III, 1760, p. 596, from Carolina and Jamaica; which in turn is founded chiefly on Catesby's *Sitta capite n'gro*, Nat. Hist. Carolina, Fla., and Bahama Is., I, 1753, p. 22, pl. 22, from Carolina).

Sitta carolinensis COVERT, in Chapman's History Washtenaw Co., Michigan, 1881, p. 175 (*nomen nudum*: = errore pro *Sitta carolinensis* Latham).

Sitta melanocephala VIEILLOT, Nouv. Diet. d'Hist. Nat., XXXI, 1819, p. 336 (nom. nov. pro *Sitta carolinensis* Latham).

Sitta carolinensis atkinsi SCOTT, Auk, VII, April, 1890, p. 118 (Tarpon Springs, Florida).

Sitta carolinensis RIDGWAY, Bulletin U. S. Nat. Mus., No. 50, part III, 1904, p. 443 (Covert MS.) (in synonymy; nom. nov. pro *Sitta carolinensis* Latham).

Sitta atkinsi litorea MAYNARD, Records of Walks and Talks with Nature, VIII, No. 1, January 12, 1916 (January 13, 1916), p. 5, pl. [1] (New River, North Carolina).

CHAPS. SUBSP.—Size small; upper parts dark-colored; lower parts soiled white or shaded with grayish; female with black of head usually not overlaid with plumbeous.

MEASUREMENTS.¹—Adult male: wing, 87.3, tail, 44.6, culmen, 18.5; tarsus, 18.4; middle toe without claw, 15.6. Adult female: wing, 86.3; culmen, 18; tarsus, 18; middle toe without claw, 15.7.

TYPE LOCALITY.—Mouth of the Savannah River, South Carolina.²

GEOGRAPHIC DISTRIBUTION.—Southeastern United States: north to North Carolina, Tennessee, Kentucky, southern Indiana, southern Illinois, and southeastern Missouri; west to western Arkansas and eastern Texas; south to southeastern Texas, Louisiana, Mississippi, Alabama, and Florida; and east to the Atlantic coast from Florida to North Carolina.

Remarks.—The *Sitta carolinensis* of Latham³ was based chiefly on the *Sitta carolinensis* of Brisson,⁴ of which the habitat was given as Carolina and Jamaica; and on Catesby,⁵ whose bird came from Carolina. As this species does not occur in Jamaica, the American Ornithologists' Union Committee⁶ very properly re-

¹ Average in millimeters of ten specimens of each sex, taken from Ridgway, Bulletin U. S. Nat. Mus., No. 50, part III, 1904, p. 444.

² Here for the first time definitely designated.

³ Index Ornith., I, 1790, p. 262.

⁴ Ornith., III, 1760, p. 596.

⁵ Nat. Hist. Carolina, Fla., and Bahama Is., I, 1753, p. 22, pl. 22.

⁶ Check-List North Amer. Birds, ed. 3, 1910, p. 345.

stricted the type locality to Carolina. For the present purpose of fixing more definitely the type region of *Sitta carolinensis*, we here designate the mouth of the Savannah River in South Carolina as the type locality, a region which Catesby is known to have visited. The name *Sitta carolinensis* must, therefore, apply to the form to which the birds from South Carolina belong. Mr. Robert Ridgway¹ has referred these to the race from the northeastern United States, which has hitherto commonly passed as *Sitta carolinensis carolinensis*. A careful examination of a satisfactory series from South Carolina shows that the birds from this region are, in both size and color, decidedly nearer the Florida subspecies, hitherto called *Sitta carolinensis atkinsi*;² so that, unless three forms be recognizable, the bird from South Carolina must belong to the same subspecies as that from Florida.

Mr. C. J. Maynard has recently described a new subspecies of *Sitta carolinensis* from the New River in southeastern North Carolina as *Sitta atkinsi litorea*.³ His type, taken by himself on November 24, 1903, has, through his courtesy, been examined in the present connection, and found to measure as follows: wing, 87 millimeters; tail, 46; exposed culmen, 15.5; tarsus, 18.3; middle toe without claw, 15.5. In color and other characters it is identical with birds from South Carolina, hence his name must in any consideration, fall as a synonym of *Sitta carolinensis carolinensis* Latham. Mr. Maynard also proposes to recognize three forms of the White-breasted Nuthatch in the eastern United States.⁴ *Sitta carolinensis carolinensis* of the northeastern United States; *Sitta atkinsi atkinsi* from Florida; and *Sitta atkinsi litorea* Maynard from the coast region of North Carolina, South Carolina, and Georgia. The specific distinctness of *Sitta atkinsi* Scott from the form of *Sitta carolinensis* occurring in the northeastern United States, hitherto called *Sitta carolinensis carolinensis*, cannot be maintained, as may readily be ascertained by an examination of specimens from all parts of the range of these birds; in fact, the birds from South Carolina and Georgia, which Mr. Maynard calls a

¹ Bulletin U. S. Nat. Mus., No. 50, part III, 1904, pp. 441-443.

² *Sitta carolinensis atkinsi* Scott, Auk, VII, April, 1890, p. 118.

³ Records of Walks and Talks with Nature, VIII, No. 1, January 12, 1916, p. 5, pl. [1].

⁴ Records of Walks and Talks with Nature, VIII, No. 1, January 12, 1916, pp. 5-7.

subspecies of the Florida form, are really intermediates between the latter and the bird from the northeastern United States. Furthermore, none of the characters which separate the Florida race from that of the northeastern United States are entirely constant. Therefore, whether two or three forms be recognized, it is evident that all must be considered races of one species. The two forms commonly regarded valid—a northern and a southern subspecies—interdigitate over a wide area in such a perplexing manner that it would be exceedingly difficult to characterize an intermediate race; and this consideration, based on a careful examination of specimens from the entire eastern range of *Sitta carolinensis*, shows that it is not satisfactory to recognize three forms of the species; hence the name *Sitta carolinensis atkinsi* Scott becomes a synonym of *Sitta carolinensis carolinensis* Latham.

The *Sitta melanocephala* of Vieillot¹ is simply a renaming of *Sitta carolinensis* Latham, and as such becomes a synonym of the latter. The *Sitta carolensis* of Covert² is merely a *lapsus calami* or misprint for *Sitta carolinensis* Latham, and is, besides, a *nomen nudum*. Mr. Ridgway, however, in his synonymy of *Sitta carolinensis*³ has given it status as a synonym of *Sitta carolinensis* Latham.

Birds from South Carolina, the type region of *Sitta carolinensis carolinensis*, are slightly larger and very slightly paler than birds from Florida, and have, in the female, usually more suffusion of plumbeous on the pileum; but, as already noted, are very much nearer this form than to that of the northeastern United States. Birds from Tennessee, Kentucky, southern Indiana, southern Illinois, southeastern Missouri, western Arkansas, and eastern Texas are intermediate between the Florida bird and that from the northern United States, but are on the whole to be referred to the former.

Specimens from the following localities, all of which may be regarded as breeding records, have been examined in the present connection:

¹ Nouv. Dict. d'Hist. Nat., XXXI, 1819, p. 336.

² In Chapman's History Washtenaw Co., Michigan, 1881, p. 175.

³ Bulletin U. S. Nat. Mus., No. 50, part III, 1904, p. 443.

Alabama: Autaugaville; Squaw Shoals; Carlton; Ardell; Jackson; Orange Beach; Huntsville; Sand Mountain (9 miles west of Trenton, Georgia).

Arkansas: Van Buren.

Florida: Cousin's (Osceola County); Gainesville; Kissimmee; seven miles southwest of Kissimmee; twenty-four miles southwest of Kissimmee; Lake Arbuckle; Morgan Hole (De Soto County); Olney (Brevard County).

Georgia: No definite locality given.

Illinois: Parkersburg; Mt. Carmel.

Indiana: Wheatland; Knox County.

Kentucky: Lexington.

Louisiana: Belcher; Hackley.

Mississippi: Bay St. Louis.

Missouri: Willow Springs.

North Carolina: New River.

South Carolina: Wayne's Place (Christ Church Parish); Kershaw County; Georgetown; Mt. Pleasant; Chester; Lanes.

Tennessee: Rockwood.

Texas: Giddings.

***Sitta carolinensis cooki*, subsp. nov.¹**

Sitta carolinensis carolinensis AUCT. nec Latham.

CHARS. SUBSP.—Similar to *Sitta carolinensis carolinensis*, but larger; upper parts lighter; lower parts more purely white; bill usually relatively less slender; and female with black of head usually overlaid with plumbeous.

DESCRIPTION.—Type, adult male, No. 558, Collection of W. W. Cooke; Washington, District of Columbia, May 23, 1904; W. W. Cooke. Pileum and cervix glossy black; upper parts carbon gray, the rump and upper tail-coverts paler; middle tail-feathers neutral gray; remainder of tail black with large white terminal or subterminal spots on the three outer feathers; wings fuscous black; the median, greater, and primary coverts, the inner webs of the two inner tertials, a subterminal streak on the inner web of outermost tertial, and the basal three-fourths of outer web of the same feather, black; the lesser wing-coverts, edgings to wing-coverts and quills, together with terminal portion of outermost tertial and outer webs of inner tertials, neutral gray, palest on the secondaries and inclined to whitish on the middle portion of some of the primaries; sides of neck opposite the jugulum, black, connecting with the black of the cervix; sides of head and anterior portion of sides of neck, together with lower parts, white (in the present specimen somewhat adventitiously soiled), the crissum mixed with

¹ Named for Professor Wells W. Cooke, in appropriate recognition of his services to ornithological science.

rather light chestnut; axillars white, anterior under wing-coverts black, posterior under wing-coverts white; thighs black, somewhat mixed with pale chestnut.

MEASUREMENTS.—Male:¹ wing, 92; tail, 46.9; culmen, 19.3; tarsus, 18.9; middle toe without claw, 15.7. Female:² wing, 89.1; tail, 45.8; culmen, 18.1; tarsus, 18.4; middle toe without claw, 15.7. Type (adult male): wing, 93.5; tail, 49; exposed culmen, 17; tarsus, 18.5; middle toe without claw, 15.5.

TYPE LOCALITY.—Washington, D. C.

GEOGRAPHIC DISTRIBUTION.—Northeastern United States and southeastern Canada: north to Newfoundland, southern Quebec, southern Ontario, northern Minnesota, and northern North Dakota, casually to northern Manitoba; west to middle North Dakota, eastern South Dakota, eastern Nebraska, central Oklahoma, and central northern Texas; south to central northern Texas, central Oklahoma, Kansas, northern Missouri, central Illinois, central Indiana, Ohio, West Virginia, and Virginia; and east to Atlantic coast of United States from Virginia to Newfoundland.

Remarks.—The best characters to separate this race from *Sitta carolinensis carolinensis* consist in its larger size, the darker coloration of its upper parts, and the usual plumbeous suffusion on the pileum of the female. The relatively shorter and stouter bill is a good average character, but so uncertain that it is of comparatively little value in the determination of individual specimens. The broader gray margins of wing-coverts and secondaries are largely a matter of season; and the lower parts are so often adventitiously stained from contact with the bark of trees that the color of these parts is not of much practical value in identifications. Birds of this race from Maryland and the District of Columbia are practically identical in color and size with those from the northern United States.

Specimens of *Sitta carolinensis cookei*, all of which may be regarded as breeding records, have, in the present connection, been examined from the following localities:

District of Columbia: Washington.

Illinois: Cook County; Jacksonville.

Kansas: Leavenworth.

Maryland: Laurel; Kensington; Montgomery County; Branchville; Finzell (6 miles north of Frostburg); Grantsville; Bittinger.

¹ Average in millimeters of 13 specimens.

² Average in millimeters of 16 specimens.

Minnesota: Fort Snelling.

Nebraska: Omaha; Douglas County; Florence.

New York: Suspension Bridge; Highland Falls; Canandaigua; Hunter.

Ohio: Circleville.

Oklahoma: Ponca Agency; Savanna.

Ontario: Lorne Park (Peel County); Lake of Bays.

Pennsylvania: Carlisle; Watsontown; Philadelphia; Chester County; Erie; Newton Hamilton; Beaver; Leasuresville.

Rhode Island: Fort Adams.

Texas: De Leon.

Virginia: Falls Church (Fairfax County); Gainesville.

Wisconsin: Kenosha.

THE BREEDING OF THE BLACK-THROATED BLUE WARBLER AT HATLEY, STANSTEAD COUNTY, QUEBEC 1916.¹

BY H. MOUSLEY.

IN 'The Auk' for January and April, 1916 (Vol. XXXIII, pp. 57-73, 168-186) I have given the status up to the fall of 1915 of the seventeen different species of warblers I had so far discovered here. Of these, four are transients, and the remaining thirteen summer visitants, out of which latter number the nests and eggs of ten had actually been found, thus leaving only three to be accounted for viz.: The Black-throated Blue (*Dendroica caerulescens*), the Black-throated Green (*Dendroica virens*) and the Blackburnian (*Dendroica fusca*). Unfortunately I was prevented from doing any field work from May 10 to June 14, so that I missed the spring migration entirely, with the exception that on May 6, I saw a pair of Yellow Palm Warblers (*Dendroica palmarum hypochrysea*) on the little seventy-five acre farm, which in 1912 had given me my first and only record until the one just mentioned.

¹ Abstract of paper read before the Nuttall Ornithological Club, Oct. 2, 1916, by Dr. Chas. W. Townsend, for the author.

The finding of most warblers' nests is not an easy matter at any time, but one is generally aided to some extent if the birds can be watched at migration time, as some indication is then often gathered of where a certain species is likely to nest by always finding it near or about the same spot in the woods. This missing, then, of the spring migration as will be readily understood was a great drawback, but fortunately I had found the three species already named during the summer of 1915, frequenting a large wood not far from my house, which consisted for the most part of a mixture of such trees as maple, beech, fir, pine and hemlock with nice open spaces in many parts where young maple saplings and others had obtained a height varying from one to six feet or more. It was to this wood therefore that I repaired on June 14 with the full determination of thoroughly exploring the ground where I had located a pair of Black-throated Blue Warblers on June 23, 1915, but had failed to find any trace of their nest. Hardly had I reached the spot and started to search, when in the forks of a little maple sapling just three feet above the ground (and only fifty yards from the spot where I had flushed the female in the previous year) I came upon a beautiful nest, which was different from any warbler's I had ever found before, and which from its construction I took to be the one I was in search of.

It was not what one might describe as entirely typical of the species, for the outside construction lacked the rotten or pithy wood, which is so characteristic of these birds, but in other respects it conformed to standard requirements, as not only was it large and bulky, but the sides were thick walled, being composed for the upper part of woven cedar or grape vine bark, whilst the lower portion was of white birch bark, the lining consisting of slender, red, hair-like rootlets (exactly the same as used by the *Magnolia* here) and some hair.

The dimensions were as follows, viz: outside diameter three and a fourth inches, inside one and three-fourths inches; outside depth four and three-fourths inches, inside one and one-half inches; and at the time of finding was empty, but apparently quite finished. On visiting it the following day about eleven o'clock it contained one egg, and for the next three days (always before the above mentioned time) an extra one was laid until the full set of four was

complete. It can well be understood that this being the first record of the bird nesting here, I was very careful not to linger longer than necessary on each visit, and it was not until after the fourth egg had been laid, and the female had begun to incubate, that I was able to prove beyond a doubt that the nest and set belonged to *Dendroica caerulescens*, as on no occasion had either of the birds put in an appearance on any of my visits. However I had now no difficulty in getting many a good look at the female as after being flushed from the nest she seemed in no way concerned and usually remained in the vicinity for some time preening her feathers and flitting about. The male never once put in an appearance nor could I find or hear him singing anywhere in the wood. After securing this nest and set I decided to keep a careful watch, and see if I could catch the birds at their second venture, but it was not until June 28, that I came across either of them, and this time it was the male (or perhaps a male) who was singing in the tree tops some 125 yards south of the site of the nest found on the fourteenth. I visited this new locality on several occasions but could find no trace of the female or a nest, and had almost given up all hope, when by a lucky chance I came across a nest on July 10. This was quite close to a little footpath along which I was walking (the previous one having also been within seven yards of a logging road) and as in the case of the first one was in the fork of a little maple sapling, but only one foot three inches above the ground instead of three feet, and was ninety yards east of the site of the first nest, and one hundred yards from the spot where I had heard the male singing on June 28.

On flushing the female I naturally concluded I had found the second nest of the only pair of birds I considered to be frequenting the wood, but on examining it, and the set of four eggs, I found both differed in a marked degree from those of the first, as not only was the nest (which I have since presented in situ to the Victoria Memorial Museum at Ottawa) a thoroughly typical one, being composed almost entirely of small pieces of rotten or pithy wood, but it was also much less in depth, the dimensions being; outside diameter three and one-eighth inches, inside one and seven-eighths inches; outside depth two and one-half inches, inside one and one-half inches; the pithy wood being held together by fibrous materials and spiders silk, no birch or cedar bark being present, and the inside

lining consisted of fine black rootlets and black and white hairs, the walls also not being so thick as in the previous one. In addition to this difference in the nests the two sets of eggs were not at all alike, the first one being rather pointed and minutely spotted size $.70 \times .51$, whilst the second one was more obtuse and boldly spotted size $.66 \times .50$. The female on being flushed behaved exactly in the same manner as before dropping to the ground and when some little distance away from the nest rising above the underbrush into the lower branches of the adjacent trees, where she preened her feathers and flitted about most unconcernedly, in marked contrast to the behavior of the Redstart, Myrtle, Magnolia and Chestnut-sided Warblers, all of whom show great concern when flushed from their nests after incubation has been in progress a few days, which was the case in the above instance. As regards the male he behaved as before not putting in an appearance, although on the day of finding the nest I located one (presumably the male of this pair) singing in the tree tops some two hundred and fifty yards away. Certainly in my experience the behavior of the male of this species is not very complimentary, but I have to write as I found him.

After locating this second nest at such a late date, and apparently belonging to another pair of birds, I made renewed efforts to try and find a third one, but without success, although on August 1 I found a female feeding a young bird just able to fly, at a spot some seventy-five yards north of the first nest, and on this occasion the male put in an appearance for a brief period only, but made no effort to feed the young one. Probably these were the advance guard of the fall migration and have no bearing on the matter, in which case it is of course possible that the two nests and sets of eggs although differing so greatly may have belonged to the same pair of birds, in favor of which my inability to find a third nest and the unusual behavior of the male in keeping out of the way in both instances would seem to point. As regards the Black-throated Green Warbler I found the parent birds feeding young on the ground on June 28, and also located two empty nests, thus definitely adding it to the breeding list, so that there only remains the Blackburnian Warbler of the summer visitants whose nest, eggs or young I have so far failed to find. In conclusion I may mention that I

have been fortunate in adding the rare Cape May Warbler to my list, as well as the Nashville and Water-Thrush (*noveboracensis*) having obtained examples of all three towards the end of August, so that my total now stands at twenty species of these interesting little birds that I have found here so far.

NOTES ON NORTH AMERICAN BIRDS.

I.

BY HARRY C. OBERHOLSER.

THIS is the first of a series of articles on the status, relationships, and nomenclature of various North American birds. These notes have been gathered during the course of many years of work, largely on the collections of the Biological Survey and of the United States National Museum, and in the identification of specimens for other institutions and for individuals. They are now presented for the benefit of ornithologists interested in the birds of this region.

***Cepphus snowi* Stejneger.**

A specimen of this species said to have been taken on the Kenai River, Alaska, on October 7, 1906, is recorded by Dr. Anton Reichenow in Niedieck's "Kreuzfahrten im Beringmeer," 1907, p. 250. A recent letter from Dr. Reichenow says that this specimen reached the Berlin Museum in too poor a condition to be preserved. He says, moreover, that while the identification of the specimen is correct, there is considerable doubt about the proper labeling of the specimens in the collection made by Mr. Niedieck. In view of this likelihood that the labels were in some manner transposed, it seems quite inadvisable to add the species to the North American list on the basis of this record.

***Dendrocygna viduata* (Linnaeus).**

A specimen of this South American duck was killed on the Hackensack Meadows in New Jersey in October, 1912, and subsequently recorded by Dr. George B. Grinnell.¹ While there seems to be no doubt of the proper identification of the specimen, its presence in New Jersey, so far beyond the limits of its normal home in South America and the West Indies, together with the fact that it is a common species in zoölogical gardens, strongly indicate that it probably escaped from captivity rather than that it wandered so far out of its normal range. In view of this fact it seems undesirable to include it in the list of North American birds without further and more positive evidence of its entirely natural occurrence within our limits.

***Anas rubripes tristis* Brewster.**

This poor duck has indeed had an unfortunate history, but it is sincerely to be hoped that brighter days are in store. The name *Anas rubripes tristis* was proposed by Mr. William Brewster² as a substitute for *Anas obscura* Gmelin, which is preoccupied by *Anas obscura* Pontoppidan for a species of the Old World. Previously Mr. Brewster had separated the red-legged form of this species as a distinct race and named it *Anas obscura rubripes*,³ taking as his type an autumn specimen from Lake Umbagog, New Hampshire.

That there are two well-marked forms of this species, one of them with bright red legs, the other with legs of an olivaceous brown, or at most only slightly reddish color, is apparently admitted by all. Whether these forms are really distinct subspecies or merely individual or other variants is of course the point at issue. Mr. Brewster has consistently claimed the subspecific distinctness of the two forms, but from this view some other ornithologists have dissented. Subsequently, however, Dr. Charles W. Townsend⁴

¹ Auk, XXX, January, 1913, p. 110.

² Auk, XXVI, April, 1909, p. 176.

³ Auk, XIX, April, 1902, p. 184.

⁴ Auk, XXIX, April, 1912, pp. 176-179.

published the notes made by him on some young captive ducks of this species reared from the down and kept under observation for two years. During this time the birds maintained the characters of the smaller form with brownish or slightly reddish legs; so that these observations, so far as they go, fully bear out Mr. Brewster's contention of the validity of the two subspecies, *Anas rubripes rubripes* and *Anas rubripes tristis*.

When the description of *Anas obscura rubripes* was first published and the distinction between the two supposed races first pointed out, the present writer was inclined to believe that these differences were due either to age, season, or individual variation. During the years that have intervened, however, every opportunity to investigate the status of these two birds has been taken; and all the results of these investigations are now seen to strengthen Mr. Brewster's view of the subspecific distinctness of the two forms. In fact, for a time it looked very much as though the two birds were specifically distinct; but there are, as Mr. Brewster says, numerous specimens variously intermediate between the two, so that subspecific titles more properly express their true relationships.

The technical name for the Red-legged Black Duck becomes *Anas rubripes rubripes* Brewster, since this is the first tenable name applied to the species; and the ordinary Black Duck, formerly known as *Anas obscura*, becomes, as above indicated, *Anas rubripes tristis*.

The principal characters and the geographic distribution of the two, so far as now determinable, are as follows:

***Anas rubripes rubripes* Brewster.**

SUBSPECIFIC CHARACTERS.—Size somewhat larger; feathers of the pileum usually much edged with grayish, ochraceous or tawny; entire throat normally spotted or streaked with very dark brown or blackish; the dark markings on the anterior lower parts and on the sides of the head larger and more blackish as well as usually more sharply defined; bill yellow; tarsi and toes bright red.

GEOGRAPHIC DISTRIBUTION.—Breeds from northern Ungava to the west-ern side of Hudson Bay in the neighborhood of Fort Churchill, south to southern James Bay and for an undetermined distance southeastward. In winter it ranges south to Arkansas, southern Texas, southern Louisiana, southern Georgia, and Florida.

***Anas rubripes tristis* Brewster.**

SUBSPECIFIC CHARACTERS.—Size somewhat smaller than *Anas rubripes rubripes*; feathers of the pileum not conspicuously edged with paler; chin and throat usually with very few dark markings or none; the dark markings on the neck and sides of the head smaller or narrower and not so deeply blackish; bill greenish black or olivaceous; legs and toes olivaceous brown, yellowish or pale orange.

GEOGRAPHIC DISTRIBUTION.—Breeds from southern Maryland and northern Indiana north to Wisconsin, southern Ontario, New Hampshire, central Quebec, Newfoundland, and the coast of Labrador; in winter south to southern Louisiana, southern Georgia, and North Carolina.

***Lophortyx catalinensis* Grinnell.**

This bird was originally described by Dr. Joseph Grinnell as *Lophortyx catalinensis*,¹ but it has since been considered merely a synonym of *Lophortyx californica vallicola*. An examination of the material now available shows, however, that it is a recognizable subspecies, differing from *Lophortyx californica vallicola* in its decidedly larger size, particularly of wing, tail, and feet, and in its rather darker coloration. It is larger also than *Lophortyx californica californica*, but much paler. While these differences are not entirely constant, and therefore do not justify specific rank, they are excellent average distinctions, and fully warrant the subspecific separation of this bird, which is confined to Santa Catalina Island. It should therefore stand as *Lophortyx californica catalinensis*.

***Myiarchus crinitus residuus* Howe.**

The Florida race of the Great-crested Flycatcher was first distinguished by Mr. Outram Bangs, who named the northern bird *Myiarchus crinitus boreus*.² Unfortunately, however, as Mr. R. H. Howe has pointed out,³ the birds from South Carolina, which must be considered the type locality of *Myiarchus crinitus* (Linnaeus),⁴

¹ Auk, XXIII, July, 1906, p. 262 (Avalon, Santa Catalina Island, California).

² Auk, XV, April, 1898, p. 179.

³ Contrib. North Amer. Ornith., I, May 21, 1902, p. 30.

⁴ *Turdus crinitus* Linnaeus, Syst. Nat., ed. 10, I, 1758, p. 170.

are nearer the northern than the southern bird. This makes necessary the use of the name *Myiarchus crinitus crinitus* for the northern race. Mr. E. W. Nelson,¹ some years ago, as a result of his studies on this difficult genus, endorsed the opinion of Mr. Bangs and Mr. Howe that the Florida form is worthy of recognition. Now, after a careful examination of pertinent material, the present writer is convinced that this is the correct view.

The Florida bird differs from that of the northeastern United States in its strikingly larger bill and somewhat shorter wing. Care must be taken in making comparisons to select actually breeding birds from Florida, since a mixture of migrant northern birds would of course readily obscure the characters of the race inhabiting Florida during the breeding season. The name for this Florida subspecies is, of course, *Myiarchus crinitus residuus* Howe,² and the type is a specimen taken at Istokpoga Lake, Florida. Comparative measurements of these two races may be found in Mr. Nelson's paper.³ The summer distribution of *Myiarchus crinitus residuus* is limited to the peninsular portion of Florida; its winter range is unknown.

***Planesticus migratorius caurinus* Grinnell.**

This northwestern form of the American Robin was first described by Dr. Joseph Grinnell from specimens taken at Windfall Harbor, Admiralty Island, Alaska.⁴ It has generally been regarded as an untenable race, but Mr. H. S. Swarth has recently claimed its distinctness on the basis of a study of an extensive series from Vancouver Island.⁵ Examination of a large series of western robins now fully substantiates Mr. Swarth's view and shows that *Planesticus migratorius caurinus* is a form well worthy of recognition. It differs from *Planesticus migratorius migratorius* in its much smaller white terminal tail spots, paler upper parts, and more sharply defined blackish pileum. From *Planesticus migratorius*

¹ Proc. Biol. Soc. Washington, XVII, March 10, 1904, pp. 30-31.

² Contrib. North Amer. Ornith., I, May 21, 1902, p. 30.

³ Proc. Biol. Soc. Washington, XVII, March 10, 1904, p. 31.

⁴ Univ. Calif. Publ. Zool., V, No. 2, February 18, 1909, p. 241.

⁵ Univ. Calif. Publ. Zool., X, No. 1, February 13, 1912, pp. 81-82.

propinquus it differs in smaller size, larger terminal white tail spots, and darker coloration.

Its breeding range extends from the Pacific slope of the State of Washington north through the Pacific coast region of British Columbia to the coast of southeastern Alaska as far north as Glacier Bay.

A NEW SUBSPECIES OF RED-WINGED BLACKBIRD FROM WESTERN CENTRAL AMERICA.

BY A. BRAZIER HOWELL.

AMONG a collection of birds which was made by A. van Rossem in Salvador, during 1912, are five red-wings — four males and a female — which prove to be of a form heretofore unnamed. I am indebted to H. W. Henshaw of the Bureau of Biological Survey, and to D. R. Dickey, for the loan of specimens that were necessary for working up this material. The series of *Agelaius p. richmondi* used in making the comparisons, comprise skins from the states of Vera Cruz, Tabasco, and Yucatan, Mexico. Those of *A. p. sonoriensis* are from the Imperial Valley, and the Lower Colorado River in California.

***Agelaius phoeniceus grinnelli*, new subspecies.**

GRINNELL'S RED-WING.

TYPE.— Male adult; no. 1585 coll. A. B. H.; San Sebastian, Salvador, July 18, 1912; collected by A. van Rossem.

DIAGNOSIS.— From *richmondi*, the males differ in being larger, especially the wings; the culmen is slightly shorter, but the bill is much heavier, thicker, and deeper. The length, taken in the flesh, is about the same as that of *sonoriensis*, but wing and tail are shorter, especially the former, while tarsus, middle toe with claw, and culmen are longer, the bill being also heavier, thicker, and deeper. The wing formula agrees with the usual one of *richmondi* (ninth primary shorter than fifth), as opposed to that of

sonoriensis (fifth primary shorter than ninth). The female, in comparison with the same sex of *richmondi*, lacks the pinkish tinge of the throat, and the dark streaking of the underparts is broader, and extends higher on the throat. The ear coverts are grayish as in *sonoriensis*, rather than buffy as in *richmondi*, but are paler than those of either. The upper parts are about the same as those of the last-named race, and hence darker than in *sonoriensis* — that is, the dark centers of the feathers are broader —, but as the only female at hand is considerably worn, nothing can be told in regard to the lighter margins of these feathers. Measurements of type.—Length (in flesh) 230 mm., wing 122.5, tail 82, exposed culmen 23, tarsus 32, middle toe with claw 23.5.

Remarks.—Three of the males are fully adult, and are of uniform size, but the fourth is a second year, breeding bird, very much under sized. The middle wing coverts are black, and the lesser covers have only a very little red at their bases. The five specimens of *grinnelli* were collected in July, whereas most of the other material used in comparison was taken during the spring, but in reaching conclusions in regard to markings, due allowance has been made for seasonal wear.

As *sonoriensis* has been taken no farther south than the Territory of Tepic, Mexico, and *richmondi* extends at least to eastern Nicaragua, I assume that *grinnelli* was derived from the latter form.

In his notes, A. van Rossem states that San Sebastian is six miles from the Pacific Coast, and lies about in the center of an immense mangrove swamp, which is some sixty miles long by six wide. Near San Sebastian is a large brackish, tule swamp, and in this he saw but seven red-wings, although his stay was of eighteen days duration. The female, which he secured July 22, was engaged in building a nest.

I take pleasure in naming this form after Dr. Joseph Grinnell, who has done so much for western ornithology and ornithologists.

SECOND ANNUAL LIST OF PROPOSED CHANGES IN
THE A. O. U. CHECK-LIST OF NORTH AMERICAN
BIRDS.

THIS is the Second Annual List of proposed A. O. U. Check-List additions and changes in the names of North American birds. Like the First,¹ the present list comprises only ornithological cases, — *i. e.*, such as require specimens or the identification of descriptions for their determination, and consists of additions, subtractions, rejections, and changes of names due to various causes.

As far as possible the subject is here brought up to December 31, 1916, and nothing proposed after that date is included. A few mistakes in the First Annual List are now corrected, and some other points, notably newly recognized genera, more fully treated than space in the previous list would allow. There are, for various reasons, a number of omissions in the present list, but it is as nearly complete as possible. In the Third Annual List, which will be published in the Auk for April, 1918, it is purposed to bring the subject up to the close of the calendar year 1917; and thereafter, by annual lists, each comprising the ornithological activity of a calendar year, to keep the Check-List in this respect up to date.—
HARRY C. OBERHOLSER.

I. ADDITIONS AND CHANGES IN NAMES.

Hydroprogne tschegrava imperator (Coues) (*cf.* Stone, Auk, XXXIII, 1916, p. 429) should be **Hydroprogne caspia imperator** (Coues), since (*Hydroprogne*) *caspia* is the accepted specific name of this bird. **Thalasseus** Boie, Isis, X, 1822, p. 563 (type, *Sterna sandvicensis* Latham). Recognized as a genus (*cf.* Mathews, Birds Australia, II, pt. 3, 1912, p. 338; and Oberholser, Proc. U. S. Nat. Mus., XLIX, 1915, pp. 516-517). Includes the following North American species now in the genus *Sterna*:

¹ For the First Annual List of Proposed Changes, see Auk, XXXIII, 1916, pp. 425-431. It will be understood that these lists cover *proposed* changes. The A. O. U. Committee has not as yet acted upon any of them, but they are presented in order to have them for handy reference and use, as well as to invite investigation and discussion.

Thalasseus maximus (Boddert).

Thalasseus elegans (Gambel).

Thalasseus sandvicensis acuffavidus (Cabot).

Sternula Boie. Recognized as a genus (cf. Mathews, *Birds Australia*, II, pt. 4, 1912, p. 373); and will contain the following North American forms now included in the genus *Sterna*:

Sternula antillarum antillarum Lesson.

Sternula antillarum browni (Mearns.)

Sternula antillarum browni (Mearns). New subspecies. *Sterna antillarum browni* Mearns, Proc. Biol. Soc. Wash., XXIX, 1916, p. 71 (near Monument No. 258, Mexican Boundary Line, on the edge of the Pacific Ocean, San Diego County, Calif.). Range: Pacific Coast region from California to Peru.

Sterna fuscata (Linnæus) becomes **Onychoprion fuscatus** (Linnæus), by recognition of the genus *Onychoprion* Wagler. (Cf. Mathews, *Birds Australia*, II, pt. 4, 1912, p. 388.)

Melanosterna Blyth, Journ. As. Soc. Bengal, XV, 1846, p. 373 (type, *Sterna anæthæta* Scopoli). By recognition of this as a genus (cf. Mathews, *Birds Australia*, II, pt. 4, 1912, p. 395), *Sterna anæthæta* becomes *Melanosterna anæthæta recognita*. (Cf. also Stone, *Auk*, XXXIII, 1916, pp. 429-430.)

Phœbastria Reichenbach, Nat. Syst. Vogel, 1852, p. V (type, *Diomedea albatrus* Pallas). Recognized as a genus (cf. Mathews, *Birds Australia*, pt. 3, 1912, pp. 242-244). Includes the following North American species now contained in *Diomedea*:

Phœbastria nigripes (Audubon).

Phœbastria albatrus (Pallas).

Phœbastria immutabilis (Rothschild).

Puffinus borealis Cory becomes **Puffinus kuhlîi borealis** Cory, since it is now regarded as a subspecies of *Puffinus kuhlîi* (Boie). (Cf. Bannerman, *Bull. Brit. Orn. Club*, XXXV, 1915, p. 121.)

Puffinus griseus (Gmelin) becomes **Puffinus griseus chilensis** Bonaparte (*Puffinus chilensis* Bonaparte, *Consp. Gen. Avium*, II, 1856, p. 202; Chile) in so far as records from the Pacific Coast of North America are concerned. (Cf. Mathews, *Birds Australia*, II, pt. I, 1912, p. 96.)

Puffinus griseus stricklandi Ridgway, in Baird, Brewer and Ridgway, *Water Birds North Amer.*, II, 1884, p. 390 (North Atlantic Ocean). Revived as a subspecies, for *Puffinus griseus* from the Atlantic Ocean. (Cf. Mathews, *Birds Australia*, II, pt. I, 1912, p. 96.)

Phaethon americanus Grant becomes **Phaethon catesbyi** Brandt, *Bull. Sci. Acad. Imp. St. Petersb.*, IV, No. 7, 1838, p. 98, in text (Bermuda Islands), since the latter proves to refer to the same bird, and is of much earlier date. (Cf. Mathews, *Auk*, XXXII, 1915, pp. 195-197.)

Pœcilonetta bahamensis (Linnæus). *Anas bahamensis* Linnæus, *Syst. Nat.*, ed. 10, I, 1758, p. 124 (Bahama Islands). Taken at Cape Canaveral, Florida. (Cf. Brooks, *Auk*, XXX, 1913, p. 110.)

- Dafila acuta americana** (Bonaparte) becomes **Dafila acuta tzitzihoa** (Vieillot) (*Anas tzitzihoa* Vieillot, Nouv. Dict. d'Hist. Nat., V, 1816, p. 163; Mexico), as the description of the latter evidently applies to the same bird. (Cf. Thayer and Bangs, Auk, XXXIII, 1916, p. 45.)
- Melanitta** Boie. Recognized as a genus (cf. Miller, Auk, XXXIII, 1916, pp. 278-281) to include the following North American species now in the genus *Oidemia*:
- Melanitta fusca** (Linnæus).
Melanitta deglandi (Bonaparte).
Melanitta perspicillata (Linnæus).
- Ardea herodias hyperoncha** Stone, Auk, XXXIII, 1916, p. 426 (error), should be **Ardea herodias hyperonca** Oberholser.
- Tringa canutus** (Linnæus) becomes **Canutus canutus rufus** (Wilson) (*Tringa rufa* Wilson, Amer. Ornith., VII, 1813, p. 43; shores of the Middle States), since the American bird proves to be subspecifically separable from that of the Old World. (Cf. Mathews, Birds Australia, III, pt. 3, 1913, pp. 272-273.)
- Limnocinclus** Gould, Handb. Birds Australia, II, 1865, p. 254 (type, *Totanus acuminatus* Horsfield). Recognized as a genus to include *Pisobia acuminata* Horsfield (= *Pisobia aurita* of the A. O. U. Check-List). (Cf. Mathews, Birds Australia, III, pt. 3, 1913, pp. 259-262.)
- Pisobia aurita** (Latham) becomes **Limnocinclus acuminatus** (Horsfield) (*Totanus acuminatus* Horsfield, Trans. Linn. Soc. Lond., XIII, May, 1821, p. 192; Java); since *Tringa* [= *Pisobia*] *aurita* Latham is the same as *Actitis hypoleuca* (Linnæus). (Cf. Mathews, Birds Australia, III, pt. 3, 1913, pp. 258-259.)
- Pelidna alpina sakhalina** (Vieillot) becomes **Pelidna alpina pacifica** Coues (*Pelidna pacifica* Coues, Proc. Acad. Nat. Sci. Phila., 1861, p. 189), since the North American bird proves to be separable from that of eastern Asia. (Cf. Thayer and Bangs, Proc. New Engl. Zool. Club, V, 1914, p. 17.)
- Arenaria interpres oahuensis** (Bloxham). *Tringa oahuensis* Bloxham, Voyage Blonde, Sandwich Is., 1826, p. 251 (Sandwich Islands). Recognized as a subspecies for the birds from the Pacific Coast of North America now referred to *Arenaria interpres interpres*. (Cf. Mathews, Birds Australia, III, pt. I, 1913, pp. 5-10.)
- Lagopus lagopus lagopus** (Linnæus) becomes **Lagopus lagopus albus** Gmelin (*Tetrao albus*, Gmelin, Syst. Nat., I, pt. II, 1789, p. 750; Hudson Bay), since the Northwestern North American bird is subspecifically separable from the European, which is *Lagopus lagopus lagopus* (Linnæus). (Cf. Clark, Proc. U. S. Nat. Mus., XXXVIII, 1910, pp. 52-53.) Range: Hudson Bay to Alaska.
- Lagopus rupestris kelloggæ** Grinnell. New subspecies. Grinnell, Univ. Calif. Publ. Zool., V, No. 12, March 5, 1910, p. 383 (Zaikof Bay, Montague Island, Prince William Sound, Alaska).
- Chlorœnas** Reichenbach, Nat. Syst. Vögel, 1852, p. XXV (type, *Columba*

fasciata Say). Recognized as a genus (cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VII, 1916, pp. 283-307). Includes the following North American species now in the genus *Columba*:

Chloroenas fasciata fasciata (Say).

Chloroenas fasciata vioscæ (Brewster).

Chloroenas flavirostris flavirostris (Wagler).

Patagienas Reichenbach, Nat. Syst. Vogel, 1852, p. XXV (type, *Columba leucocephala* Linnaeus). Recognized as a genus (cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VII, 1916, pp. 308-315). Includes the following North American species now in the genus *Columba*.

Patagienas leucocephala (Linnaeus).

Patagienas squamosa (Bonnaterre).

Melopelia asiatica mearnsi Ridgway. New subspecies. Ridgway, Proc. Biol. Soc. Wash., XXVIII, May 27, 1915, p. 107 (5 miles north of Nogales, Ariz.).

Chamæpelicia passerina bermudiana (Bangs & Bradlee) becomes ***Chamæpelicia passerina bahamensis*** Maynard (*Chamæpelicia bahamensis* Maynard, Amer. Exchange and Mart., III, 1887, p. 33), since the bird from the Bermuda Islands proves to be inseparable from that of the Bahama Islands. (Cf. Todd, Annals Carnegie Mus., VIII, 1913, pp. 568-571.)

Oreopeleia Reichenbach, Nat. Syst. Vogel, 1852, p. XXV (type, *Columba martinica* Linnaeus). Recognized as a genus (cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VII, 1916, pp. 467-495). Includes the following North American species now in the genus *Geotrygon*:

Oreopeleia chrysia (Salvadori).

Oreopeleia montana (Linnaeus).

Hierofalco Cuvier. Recognized as a genus (cf. B. O. U. Committee, List Brit. Birds, 1915, pp. 147-148). Includes the following North American species now in the genus *Falco*:

Hierofalco rusticolus candicans (Gmelin).

Hierofalco rusticolus obsoletus (Gmelin).

Hierofalco mexicanus (Schlegel).

Falco fuscocærulescens Vieillot becomes ***Falco fuscocærulescens septentrionalis*** subsp. nov., Todd, Proc. Biol. Soc. Wash., XXIX, June 6, 1916, p. 98 (Fort Huachuca, Ariz.).

Cerchneis Boie. Recognized as a genus (cf. Chapman, Bull. Amer. Mus. Nat. Hist., XXXIV, 1915, pp. 372-382). Includes the following North American species now in the genus *Falco*:

Cerchneis tinnunculus (Linnaeus).

Cerchneis sparveria sparveria (Linnaeus).

Cerchneis sparveria phalæna (Lesson).

Cerchneis sparveria peninsularis (Mearns).

Cerchneis sparveria paula Howe and King.

Cerchneis sparveroides (Vigors).

Otus asio asio (Linnaeus) becomes ***Otus asio nævius*** Gmelin (*Striz*

nævia Gmelin, Syst. Nat., I, pt. I, 1788, p. 289; New York); since *Otus asio asio* of the A. O. U. Check-List refers properly to the Florida race now called *Otus asio floridanus*. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 690-692.)

Otus asio floridanus (Ridgway) becomes **Otus asio asio** (Linnæus); since birds from South Carolina, the type locality of the latter, are referable to the Florida race. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 687-690.)

Bubo virginianus neochanes Stone, Auk, XXXIII, Oct, 1916, p. 427 (error) should be **Bubo virginianus neochorus** Oberholser, Proc. Biol. Soc. Wash., XXVII, 1914, p. 46 (Fox Island River, Newfoundland).

Surnia ulula ulula (Linnæus) becomes **Surnia ulula pallasi** Buturlin, Ornith. Monatsb., XV, June, 1907, p. 100 (Siberia); since the Alaska record of the species is referable to the latter. (Cf. Hartert, Vög. Pal. Fauna, VIII, 1913, pp. 1012-1013.)

Glaucidium phalœnoides (Daudin) becomes **Glaucidium brasilianum ridgwayi** Sharpe (*Glaucidium ridgwayi* Sharpe, Ibis, 1875, p. 55, in text; Guatemala); since the Mexican bird is a recognizable race, and a subspecies of the South American *Glaucidium brasilianum* (Gmelin). (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 798-803.)

Micropallas whitneyi idoneus Ridgway (cf. Stone, Auk, XXXIII, 1916, p. 427) should be **Micropallas whitneyi idonea** Ridgway, since the gender of the subspecific name should conform to that of the genus.

Conuropsis carolinensis interior Bangs becomes **Conuropsis carolinensis ludoviciana** (Gmelin), since birds from Louisiana, the type locality of *Psittacus ludovicianus* Gmelin, Syst. Nat., I, pt. i, 1788, p. 347, are referable to the interior race. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VII, 1916, p. 150.)

Trogon ambiguus Gould becomes **Trogonurus ambiguus ambiguus** (Gould), by recognition of the genus *Trogonurus* Bonaparte (Ateneo Italiano, II, No. 8, May, 1854, p. 129; type, *Trogon collaris* Vieillot), and of an extralimital subspecies. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. V, 1911, pp. 761-773.)

Megaceryle Kaup becomes **Streptoceryle** Bonaparte, (Ateneo Italiano, II, 1854, p. 320; type, *Alcedo alcyon* Linnæus), because the latter is recognized as a genus and the former is consequently found to be extralimital. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 407-421). The genus *Streptoceryle* includes the following North American forms:

Streptoceryle alcyon alcyon (Linnæus).

Streptoceryle alcyon caurina (Grinnell).

Streptoceryle torquata torquata (Linnæus).

Ceryle americana septentrionalis Sharpe becomes **Chloroceryle americana septentrionalis** (Sharpe), by recognition of the genus

Chloroceryle Kaup., Verh. Naturhist. Vereins Hessen, II, 1848, p. 68 (type, *Alcedo superciliosa* Linnæus). (Cf. Miller, Bull. Amer. Mus. Nat. Hist., XXXI, 1912, pp. 264-311; and Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 407, 421-441.)

Dryobates villosus leucomelas (Boddært) becomes **Dryobates villosus septentrionalis** (Nuttall) (*Picus septentrionalis* Nuttall, Man. Ornith. U. S. and Canada, ed. 2, I, 1840, p. 684; Saskatchewan River, Saskatchewan, Canada); since *Picus* [= *Dryobates*] *leucomelas* Boddært proves to be the same as *Dryobates villosus villosus* (Linnæus). (Cf. Oberholser, Proc. U. S. Nat. Mus., XL, 1911, p. 604.)

Dryobates borealis (Vieillot) becomes **Phrenopicus borealis** (Vieillot), by recognition of the genus *Phrenopicus* Bonaparte, Ateneo Italiano, II, 1854, p. 123 (type, *Picus borealis* Vieillot). (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 268-271.)

Balanosphyra Ridgway. New genus. Ridgway, Proc. Biol. Soc. Wash., XXIV, 1911, p. 34 (type, *Picus formicivorus* Swainson). Includes the following North American woodpeckers now in the genus *Melanerpes*:

Balanosphyra formicivora formicivora (Swainson).

Balanosphyra formicivora aculeata (Mearns).

Balanosphyra formicivora bairdi (Ridgway).

Balanosphyra formicivora angustifrons (Baird).

Balanosphyra formicivora formicivora (Swainson). Recorded from south central Texas. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, p. 104.)

Antrostomus vociferus vociferus (Wilson) becomes **Setochoalcis vocifera vocifera** (Wilson), by institution of the new genus *Setochoalcis*. (Cf. Oberholser, Bull. U. S. Nat. Mus., No. 86, 1914, p. 12.)

Antrostomus vociferus macromystax (Wagler) becomes **Setochoalcis vocifera arizonæ** (Brewster) (*Antrostomus vociferus arizonæ* Brewster, Bull. Nuttall Orn. Club, VI, 1881, p. 69; Chiricahua Mts., Ariz.), by recognition of the Arizona race as distinct from that of central Mexico. (Cf. Oberholser, Bull. U. S. Nat. Mus., No. 86, 1914, p. 12.)

Chordeiles virginianus aserriensis Cherrie, Auk, XIII, 1896, p. 136 (valley of Aserri River, near San José, Costa Rica). Recognized as the form breeding in central southern Texas. (Cf. Oberholser, Bull. U. S. Nat. Mus., No. 86, 1914, p. 71.)

Cypseloides niger borealis (Kennerly) becomes **Nephæcetes niger borealis** (Kennerly), by recognition of the genus *Nephæcetes* Baird, Rep. Explor. and Surv. R. R. Pac., IX, 1858, p. 142 (type, *Hirundo nigra* Gmelin). (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. V, 1911, pp. 703-710.)

Uranomitra salvini (Brewster) becomes **Amizilis salvini** (Brewster), by the combining of *Uranomitra* with the genus *Amizilis*. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. V, pp. 406, 429-430.)

Tyrannus melancholicus satrapa (Cabanis and Heine). *Laphyctes satrapa* Cabanis and Heine, Mus. Hein., II, 1859, p. 77 (Lichtenstein MS.) (Guiana). Taken at Scarborough, Maine. (Cf. Norton, Auk, XXXIII, 1916, p. 382.)

Agelaius phoeniceus phoeniceus (Linnæus) becomes **Agelaius phoeniceus predatorius** (Wilson) (*Sturnus predatorius* Wilson, Amer. Ornith., IV, 1811, p. 30, pl. XXX, figs. 1, 2; eastern Pennsylvania); since *Agelaius phoeniceus phoeniceus* of the A. O. U. Check-List refers properly to the Florida race now called *Agelaius phoeniceus floridanus*. (Cf. Mearns, Proc. Biol. Soc. Wash., XXIV, 1911, pp. 226-227.)

Agelaius phoeniceus floridanus Maynard becomes **Agelaius phoeniceus phoeniceus** Linnæus, since birds from South Carolina, the type locality of the latter, are referable to the Florida race. (Cf. Mearns, Proc. Biol. Soc. Wash., XXIV, 1911, pp. 226-227.)

Loxia curvirostra sitkensis Grinnell, Univ. Calif. Pub. Zool., V, Feb. 18, 1909, p. 223 (Windfall Harbor, Admiralty Island, Alaska). Recognized as a tenable subspecies (cf. Brooks, Bull. Mus. Comp. Zool., LIX, September, 1915, p. 406). Range: Coast district of southeastern Alaska.

Passerculus sandwichensis brooksi Bishop. New subspecies. Bishop, Condor, XVII, Sept., 1915, p. 187 (Chilliwack, B. C.). Range: southwestern British Columbia to western Washington; in winter to California.

Melospiza melodia fisherella Oberholser. New subspecies. Oberholser, Proc. Biol. Soc. Wash., XXIV, Dec. 23, 1911, p. 251 (Honey Lake, near Millford, Calif.). Range: eastern California, western Nevada, and central southern Oregon.

Melospiza melodia mailliardi Grinnell. New subspecies. Grinnell, Univ. Calif. Publ. Zool., VII, No. 5, Feb. 18, 1911, p. 197 (Rancho Dos Rios, near Modesto, Calif.). Range: Lower San Joaquin valley, California.

Guiraca caerulea salicaria Grinnell. New subspecies. *Guiraca caerulea salicarius* Grinnell, Proc. Biol. Soc. Wash., XXIV, June 16, 1911, p. 163 (Santa Ana River, near Colton, Calif.). Range: central and southern California.

Petrochelidon lunifrons lunifrons (Say) becomes **Petrochelidon albifrons albifrons** (Rafinesque) (*Hirundo albifrons* Rafinesque, Kentucky Gazette, February 14, 1822, p. 3, col. 4; Newport, Kentucky); since Rafinesque's name is clearly identifiable as *Hirundo* [= *Petrochelidon*] *lunifrons* Say and is of earlier date. (Cf. Rhoads, Auk, XXIX, 1912, pp. 192-195.)

Penthestes hudsonicus nigricans Townsend. New subspecies. Townsend, Auk, XXXIII, Jan., 1916, p. 74 (Shekatika, Saguenay County, Quebec). Range: Forested region of Labrador Peninsula.

Corthylio Cabanis, Journ. f. Ornith., I, Jan., 1853, p. 83 (type, *Motacilla*

calendula Linnaeus). Recognized as a genus (cf. Miller, Auk, XXXII, 1915, pp. 234-236). Includes the following North American species now in *Regulus*:

Corthylio calendula calendula (Linnaeus).

Corthylio calendula grinnelli (Palmer).

Corthylio obscurus (Ridgway).

Regulus calendula obscurus Ridgway becomes ***Corthylio obscurus*** (Ridgway), because considered specifically distinct from *Corthylio calendula*. (Cf. Miller, Auk, XXXII, 1915, pp. 235-236.)

II. REJECTIONS AND ELIMINATIONS.¹

****Melopelia asiatica trudeauui*** (Audubon) = *Melopelia asiatica asiatica*. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VII, pp. 378-382.)

Strix occidentalis huachucae Swarth (Univ. Calif. Publ. Zool., VII, No. I, May 26, 1910, p. 3 [Huachuca Mts., Ariz.]) = *Strix occidentalis lucida* (Nelson). (Cf. Oberholser, Proc. U. S. Nat. Mus., XLIX, July 26, 1915, p. 253.)

****Glaucidium gnoma vigilante*** Grinnell = *Glaucidium gnoma californicum* Selater. (Cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, p. 791.)

GENERAL NOTES.

Type of the Large-billed Puffin.— In the third edition of the A. O. U. Check-List, 1910, p. 27, the name *Fratercula arctica naumanni* is stated as "based upon *Mormon glacialis* of Naumann, Isis, 1821, 782, pl. VII, fig. 2.

In conducting a study of the Puffins brought from Labrador by the Bowdoin College Expedition of 1891,² I found it desirable to examine typical representatives of *Fratercula arctica* (Linnaeus) from Europe, and also *Fratercula arctica glacialis* (Naumann) as then understood.

I was at the time aware that the status of the latter had been questioned by some writers, and as I became convinced that the bird was recognizable, wished to emphasize the fact. As the bird had no place in the Labrador fauna it was disposed of in a footnote.³ I now think that in the endeavor to treat the matter briefly, and credit Naumann with its discovery I may

¹Eliminations of forms already in the A. O. U. Check-List, the Sixteenth Supplement or the First Annual List, are prefixed with an asterisk.

²Proc. Portland Soc. N. H., II, p. 140-145.

³I. c. p. 144.

have erred in over emphasizing his work, without specifying a type for the new name found necessary. It is however, evident from the same paper, that I had for study a specimen of the bird. Since Naumann did not indicate a type for his figure and description, and since a new name had to be given the bird to which his description applies, I consider the specimen which I had in hand, really the convincing element in the consideration, (number 86019 of the United States National Museum, from Spitzbergen) to be the type of *Fratercula arctica naumanni*.—ARTHUR H. NORTON, Portland, Maine.

The Possibility of *Puffinus bermudæ* Nichols & Mowbray in the North Atlantic.—An old Shearwater skin presented by G. A. Boardman in 1867 to the Boston Society of Natural History, now M. C. Z. 73408, taken on the coast of Maine or New Brunswick by Dresser, was originally determined as *Puffinus puffinus* (Brünnich). Recently Mr. R. C. Murphy compared this specimen with the type of *P. f. bermudæ* Nichols & Mowbray, and found it very similar.

It therefore seems reasonable to suspect that former records of the Manx Shearwater in the northwest Atlantic might really have been this Bermuda form.—W. SPRAGUE BROOKS, *Boston Society of Natural History*.

Sooty Tern in New Jersey.—On September 7, 1916, I obtained an adult female Sooty Tern (*Sterna fuscata*) at Corson's Inlet, Cape May County, New Jersey. This specimen, which is in perfect adult plumage, was resting in the long grass in the sand dunes, a very short distance back from the beach. It was very tame and allowed me to get quite close before flushing. This specimen is now No. 2817 of my collection.—WHARTON HUBER, *Gwynedd Valley, Pa.*

Coloration of Down in Adult Ducks.—It is not impossible that the writer has been alone in his ignorance of the fact that in a goodly number of ducks there is a great difference in the color of the down during the winter and the summer months. My observations of summer down have been taken entirely from the nests accompanying sets of eggs in my collection, which would seem beyond a doubt to furnish correct data. These nests contained eggs only of the duck under discussion, which makes it almost a certainty that the down could have come from no other species (I specify this for the reason that it is not uncommon in some localities for two or more species of ducks to lay in the same nest). Down from winter females has been used in all comparisons, as it seems unlikely that the males would contribute to the nesting material.

The down seen in nests of the Mallard (*Anas boschas*) found in April and May is many shades darker than the down on birds of this species shot in October, November, and December. In the winter it is a very light brownish gray, while in the summer it is changed to a dark, sooty brown.

While this difference is most marked in the Mallard, the same facts hold good to a large extent in my nests of the following species of ducks:—Red-breasted Merganser (*Merganser serrator*), Green-winged Teal (*Nettion carolinense*), Cinnamon Teal (*Querquedula cyanoptera*), and Pintail (*Dafila acuta*), all of which show the down to be considerably darker than in birds of the same species shot in the winter. In the following species the same variation holds good, although in a somewhat lesser degree:—Canvasback (*Marila valisineria*), Scaup Duck (*Marila marila*), and Lesser Scaup Duck (*Marila affinis*).

There would seem to be a possibility, even though a scant one, that this difference in coloration might be caused by dirt from the parent bird soiling the down. This theory is made practically untenable by the fact that in the following species there is very little difference between the down found in the nests and that on females shot during the winter months:—Merganser (*Mergus americanus*), Wood Duck (*Aix sponsa*), and Redhead (*Marila americana*). Lack of material at hand prevents any further comparison, but these few notes may prove of interest to someone as ignorant on the subject as myself.

These notes are not sent in with the wish to publish a well established fact, as possibly the observations of other collectors in different sections of the country may show very different results. However, the nesting season is close at hand, so it would seem to be worth while putting in print the results of my own observations in order that the subject may be brought before other observers as a matter for more extended study.—J. H. BOWLES, Tacoma, Wash.

Killdeer (*Oxyechus vociferus vociferus*) in Massachusetts.—Upon the authority of many of the older ornithological writers it is evident that this species bred in earlier years at various widely separated stations in the state of Massachusetts. In more recent years however, it has become rare, so much so, as to make its occurrence noteworthy. It is with a sense of pleasure and satisfaction that at this time I can submit evidence of an increase in its numbers and frequency in this northeastern portion of the State at least, an increase due quite probably to the better protective laws now in force. The following notes briefly record its occurrence in a region where it has been absent for a number of years.

West Newbury, Mass., May 24, 1915, 5.30 A. M. While walking along a road in the open country I was attracted by the petulant cry of a Killdeer Plover, and in a moment discovered the bird flying low and coming toward me. He alighted about 60 yards distant in an open pasture, offering me a very good view, and an opportunity to identify him with certainty if his voice had not been sufficiently convincing. After a few moments of erratic running about in the open pasture he took flight in a southerly direction.

West Newbury, Mass., Sept. 6, 1915 — 3 P. M. Three Killdeer Plover noted flying northward at great heights, their unmistakable notes bespeaking their presence and identity.

West Newbury, Mass., Oct. 18, 1915 — 11 p. m. Hear the notes of Killdeer Plover overhead, presumably from several birds migrating.

Newburyport, Mass., May 5, 1916. Two Killdeers walking about on ploughed fields.

June 23, 1916. Probably the same birds seen again in the same field.

Jan. 24, 1916. About a half mile from the above mentioned field heard the notes of a Killdeer and on investigation found four adult birds, running about erratically and uneasily amid the sparse grass of the pasture. They allowed me, however, to approach quite closely and I had an excellent opportunity to observe their coloring. By an odd coincidence, in making my way back to the road, and about 300 yards from where the Killdeer were seen, I flushed three Upland Plover (*Bartramia longicauda*). These last have been sufficiently scarce of late to make their occurrence interesting.

June 28, 1916. In the same locality as above mentioned, saw one Killdeer Plover. — S. W. BAILEY, *Pittsfield, Mass.*

Note on the Passenger Pigeon.— About a year and one half ago, the Cornell University Museum came into the possession of a mounted adult male Passenger Pigeon through the kindness of its collector, Mr. J. L. Howard of Clyde, N. Y., a justice of that city. He is now over 80 years old and had the bird mounted by a local taxidermist, George L. Perkins, who is now dead. According to Mr. Howard's memory the bird was taken in 1909, 11 years after the last certain capture (Sept. 14, 1898) of a Passenger Pigeon in the State. On the bottom of the mount is the legend, "Geo. L. Perkins, July 5, 1898," — a date in close agreement with Mr. Wilbur's record (Sept. 14, 1898) at Canandaigua, N. Y. The mount might be an old mount from some other bird. Mr. Howard's letter follows:

"My account of the shooting of the Passenger Pigeon must be short as there was but little of it. Upon the John Heit farm about $2\frac{1}{2}$ miles s. w. of Clyde and near the Clyde River is, and has been longer than I remember, a small pond nearly round and about 3 rods in diameter. A low hill upon the south reaches to the water's edge forming a sloping beach. Years ago this pond was in a large forest. Now this was always, as long as there were any pigeons, a favorite place for them to come and drink. Six years ago (1909) I think, I took my gun and went to this pond in hopes I might get a Blue Heron, which I very much wanted. There were tracks of herons, plover and other birds in the mud around the shores, so I sat down in some bushes and pulled them up around me so as to partly conceal myself, facing the East where I could see a long distance. Presently I saw, far to the East, a bird coming directly towards me. I took it to be a Pigeon Hawk. It flew off to my right and turned in behind me and the next instant I heard its wings beating for a short span and then I heard to my right and very near the loud and distinct crow of a Wild Pigeon. Well that was a surprise. I had not seen a pigeon in fifteen years or more and now I sat within a few feet of one and he kept on crowing. Well I went

to work at those bushes, pulling them apart when suddenly I saw him standing upon the top of a fence post and still crowing.

I picked up the gun and placed it to the shoulder and old hunter and old trapshooter as I was I could not hold the gun still I trembled so. But I took a trap-shooter's chance and got the bird."—S. C. BISHOP and A. H. WRIGHT, *Cornell University, Ithaca, N. Y.*

Feeding Habit of the Sparrow Hawk.—The month of March, 1916, was spent by the writer in the longleaf pine forests of northern Louisiana. In the region of lumbering operations fires were of frequent occurrence. The hawks took full advantage of the action of the fire in driving out insects, small reptiles, and rodents, and, in spite of the great heat and intense black smoke arising from the resinous wood, the birds would not only dash past within a few feet of the flames, but would actually alight on stubs and fallen branches in smoke so thick that they were frequently lost to view. In the vicinity of every fire observed hawks were present and as many as twenty individuals were noted at one time.—A. W. SHORGER, *Madison, Wisc.*

The Barn Owl (*Aluco pratincola*) in Western New York.—The writer wishes to record the capture of the Barn Owl in the town of Eden, Erie Co., N. Y. Noting a mounted adult specimen of this species in the taxidermist's shop at Hamburg, he was surprised to learn that the bird was taken on a large produce farm about fifteen miles southwest of Buffalo. Subsequent correspondence with the owner of the farm revealed the fact that it was captured alive in a silo during the month of April, 1916. The bird was first seen in the barn about 5 o'clock in the afternoon, but flew into the silo when attempts were made to catch it. Here it was easily procured by closing a small door.

Rumors of the occurrence of this species in the town of Eden have come to the writer's attention several times within the past ten years. However, Mr. Wm. D. Henry, the owner of the present specimen, states that he never saw a bird of this kind before and is inclined to regard such statements as erroneous.—THOMAS L. BOURNE, *Hamburg, N. Y.*

An Unrecorded Bird from the Bahamas.—When compiling my list of Bahama birds (Shattuck, *The Bahama Islands*, 1905, pp. 347-368), I overlooked a specimen of the Kingbird (*Tyrannus tyrannus*) taken at Nassau, New Providence, April 22, 1864, by Lieutenant Fitzgerald and now in the U. S. National Museum, No. 33171. Mr. Ridgway also failed to record this specimen in Bull. U. S. Nat. Museum No. 50, Part IV, 1907, 689, and as it has not been previously or subsequently recorded from the Islands to my knowledge, I have thought it best to put the specimen upon record.—J. H. RILEY, *Washington, D. C.*

Blue Jay in Jefferson Co., Colorado.—I was startled on the morning of Sept. 24, 1916, to hear the calls of Blue Jays (*Cyanocitta cristata cristata*)

in the orchard of our farm in Jefferson County, Colorado, located a mile and a half south of the little town of Broomfield. I hurried to the spot whence the cries came and found that I was not mistaken in the notes with which I was familiar in my boyhood days in Illinois, for, there in a high cottonwood tree in the midst of the orchard were two Blue Jays. They were wild and restless and flew off at once in a southwesterly direction, passing near enough, however, for positive identification. The following day my son saw one in the same tree and it flew in the same direction.

Blue Jays have previously been observed around Wray, in the eastern part of our State but it is my impression that this is an extreme western record.—A. H. FELGER, *Denver, Colo.*

Note on the Bronzed Grackle in Maine.—Mention should be made, I think, of the increase in the numbers of the Bronzed Grackle (*Quiscalus quiscula œneus*) in and about Portland, Maine, since it was recorded,¹ many years ago, as "rare,—even in the migration uncommon." It is nowadays one of the common species of this part of southwestern Maine, and during the migration periods sometimes occurs in large flocks. On April 13, 1915, I saw at least six hundred birds together in the town of South Portland. The possibility suggests itself that more than one geographical race may be represented in such an increase. Recent specimens in evidence are lacking.—NATHAN CLIFFORD BROWN, *Portland, Maine.*

A Bird new to the North American Fauna.—The Bureau of Fisheries has transferred to the collection of the U. S. National Museum a fine adult male Pine Grosbeak taken on the tundra of St. George Island, Pribilofs, Alaska, Oct., 1915. This specimen proves to be *Pinicola enucleator kamtschathensis* (*Corythus enucleator kamtschathensis* (sic) Dybowski, Bull. Soc. Zool. France, 8, 1883, 367; founded on Taczanowski, t. c., 7, 1882, 394), and measures as follows: wing, 112; tail, 92; culmen, 14.5; depth of bill at base, 11.5; width of bill at base, 9.5; tarsus, 21.5; middle toe, 15 mm. These measurements are almost exactly duplicated by a specimen taken by Mr. A. H. Clark at Petropaulski, Kamchatka, June 17, 1906 (Proc. U. S. Nat. Museum, 38, 1910, 64).—J. H. RILEY, *Washington, D. C.*

The Evening Grosbeak (*Hesperiphona vespertina vespertina*) in Southern New Jersey and Pennsylvania.—On January 29, 1917, at about noon in the midst of a cold rain I was walking along a road which passed by a little clearing near a saw-mill at New Lisbon, New Jersey. I heard a series of loud chirpings, something like the chirping of English Sparrows only more resonant. On looking up I saw a small yellow locust tree by the side of the road almost filled by a flock of Evening Grosbeaks. The birds kept motionless for some time and I had an opportunity to count them three times in succession and found that the flock consisted of seventy-four.

¹ Proc. Portland Society Nat. Hist., Dec. 4, 1882, p. 16.

Some six of them were males. I had never seen the bird before, but it was, of course, easy to identify it by the thick white beak and by the bright gold, ivory white and velvety black of the males. A male Evening Grosbeak in full plumage with its black head, golden forehead, thick white beak, black and white wings, golden back and breast and forked black tail impresses me as the most spectacular bird that I have ever seen. Probably this was owing to the winter background of cold rain, brown fields and leafless trees. New Lisbon is in the center of the pine-barren region. This flock seemed to be feeding on the locust tree as one of the birds had a pod in its mouth. On subsequent occasions I would frequently find them in locust trees and there were always on the ground pieces of freshly opened pods. The favorite food during the times that I observed them appeared to be the pits of the common Wild Cherry (*Prunus serotina*). They fed in a circle in the clearing about one hundred yards in diameter and were frequently found on the ground under the various Wild Cherry trees in this tract. The ground under these trees was covered with cherry-stones neatly split in half, while the droppings of the birds showed that they had fed there for a considerable space of time. The birds were restless, but not particularly wild. They would feed together in the trees for a time and then fly all together to the ground and then back again to the trees. I was able to approach several times within about thirty feet of the flock. On inquiry the miller reported that he had never seen or heard of these birds before although he had lived in that part of the country all his life. They had a clear trilling note besides the chirp above mentioned. At times they would all join in a chirring chorus. They reminded me very much of a flock of overgrown Goldfinches with their forked tails and the gold and black and white of their plumage, just as a flock of Pine Grosbeaks makes one think of a flock of overgrown Purple Finches. I am under the impression that I heard the call-note of this bird the night before in a swamp near my camp though at the time I thought that it was the chirp of some wintering Robins.

I saw and studied this particular flock on January 29, again on February 11, February 12, February 17 and February 22. On February 11 and 12 the flock had been reduced to about forty birds with only three males. On February 17 there were not more than twenty birds there and not more than one or two males. On the afternoon of February 17 a friend of mine reported that he had found a detached pair. On February 22 there had been a light fall of snow and the birds were not found at all in the usual place. Two flew overhead in the early afternoon and in the middle of the afternoon four females were found in the top of a pitch-pine tree. The miller told me that every morning this flock would come into his dooryard at dawn and even feed on crumbs put out on the porch by the children. He said that the full flock at that time was nearly a hundred and that even so late as February 21 there had been seventy or eighty of them in his yard. His figures, of course, were only estimated. A flock of 65 was seen by Dr. E. P. Darlington, at Browns-Mills-in-the-Pines, a little farther east, on January 10, 1917, and they had been seen a number of times by Miss Rachel Weston near the Browns-Mills Inn. This is doubtless the

same flock which I studied at New Lisbon. So far as I can find the other records of Evening Grosbeaks in this vicinity are as follows:

December 5, 1916, at Cinnaminson, N. J., Charles Evans.

December 24, at Smithville, N. J., N. D. W. Pumyea.

December 26, at Westville, N. J., Julian K. Potter, and on December 31, on Mill Creek at Ardmore, Pa., one male was seen by W. J. Serrill. Doctor Stone also advises me that a flock was reported at Hammonton, N. J., on February 22, 1917, by Mr. Geo. W. Bassett, who says they have been present most of the winter feeding mainly on the seeds of the box elder. A single bird was also seen at Lumberton, N. J., March 14, 1917, by Mr. B. F. Clayberger.—SAMUEL SCOVILLE, JR., Philadelphia, Pa.

First Recorded Nesting of Bachman's Sparrow in Pennsylvania.—

During the summer of 1913 the writer had the good fortune to see the Bachman's Sparrow (*Peucaea aestivalis bachmani*) as a summer resident in southwestern Pennsylvania. At that time the birds were noted at several places in southern Greene Co., close to the Mason and Dixon line.

A close watch was made for the birds during successive seasons but none were seen until the spring of 1916. On May 12, while I was instructing a field class in bird-life, we encountered a pair of Bachman's Sparrows. My attention was first called to them by the continual singing of the male. The female was soon located and the pair carefully watched. The female soon gathered nesting material and flew to a cluster of weeds just inside the border of an open grove of large white oak trees. I made a search and soon found an almost completed nest.

Upon returning to the nest in about one week I found the bird at home protecting her five white eggs. The birds were carefully examined after collecting and proved to be *Peucaea aestivalis bachmani*. The skins of this pair of birds are now in Waynesburg College collection. The set of 5 eggs and nest are in the collection of Mr. James Carter, Waynesburg, Pa. — S. S. DICKEY, Waynesburg, Pa.

Bohemian Waxwings at Seattle, Wash.— During the present winter, 1916-1917, this region has had some remarkable invasions of certain species of birds, the most noticeable perhaps being the Bohemian Waxwing (*Bombycilla garrulus*). As nearly as can be ascertained this species made its first appearance about December 10 in flocks of considerable size, but on the 26th or 27th the great body of the birds arrived numbering thousands of individuals, which thereafter for some considerable period could be observed almost every day within a comparatively restricted area some six miles in length along the eastern boundary of the city, adjacent to Lake Washington. This was accounted for by the fact that within this particular section was an abundant food supply in the form of the berries of the Madrona tree (*Arbutus menziesii*) which had fruited with unusual abundance the past season and of which the Waxwings appeared very fond, it not being uncommon at times to count in one of the larger trees upwards of five hundred of the birds.

Always associated with the Waxwings were flocks of the Western Robin (*Planesticus migratorius propinquus*), of this species the individuals numbered several thousands, and at times when suddenly startled, this immense body of birds would arise scattering in every direction, and then begin to congregate in flocks. On some occasions they would all amalgamate into one vast flock and after flying about, would again break up into small flocks which alighted in the berry laden trees and immediately resumed feeding until again disturbed, when these evolutions would be repeated. At all times the soft rolling chatter of the many Waxwings could be heard, which added to the interesting spectacle. On one particular occasion apparently all the individuals in a large portion of the section became associated, forming a flock that by careful estimate was an eighth of a mile in length and of considerable width.

Many times in these flocks of Bohemian Waxwings we observed a few Cedar Waxwings (*Bombycilla cedrorum*), and also in the same locality small flocks of Pine Siskins (*Spinus pinus*) and Willow Goldfinches (*Astragalinus tristis salicamans*), which would sometimes mingle with the former in flight but disassociate when the Waxwings alighted.

About January 25 the supply of Madrona berries in the section described became practically exhausted, and thereafter the Waxwings were seen in smaller flocks and became scattered throughout the city in quest of suitable food. On many occasions the birds were seen in the parks of the city and about the residences wherever there was shrubbery that might bear berries, and this continued until about February 15, after which date we have failed to note them.

How extended the incursion of this species has been we do not know, but have received reports of its occurrence at Port Angeles, sixty-five miles northwest on the Strait of Juan de Fuca and beyond Olympia to the south, and it is fair to assume that it must have been of very marked extent.

During this winter season there has also been an unusual flight of Raptors. About the middle of November, Snowy Owls (*Nyctea nyctea*) began to appear in numbers, the first flight of any importance since 1896: the local taxidermists up to February 1 having received upwards of fifty specimens, most of which present the usual form of plumage. The species has also been quite generally observed throughout the Sound region. There have also been brought to the local taxidermists a very large number of Great Horned Owls, and on looking over the mounted specimens, I found that the larger proportion were typical *saturatus*, among them some very dark and beautiful birds. There were also certain specimens apparently assignable to *occidentalis* and *lagophonus*, and one particular specimen which was very light and quite suggestive of *vapacuthu*. Numerous reports have also been received of individual birds being seen in various localities, and the flight of this species seems to have been widely extended throughout this region. Goshawks likewise have appeared in more than the usual numbers and with hardly an exception those examined were representative of *striatulus*. Mr. D. E. Brown of this city has two adults in fine plumage taken January 7 and 18.—S. F. RATHBUN, Seattle, Wash.

Migrant Shrike (*Lanius ludovicianus migrans*) at Newburyport, Mass.—On August 28, 1915, a short distance outside the city limits I noted a Migrant Shrike, my first acquaintance with the rather uncommon species. And again on August 21, 1916, in the same region a single bird of this species was noted.—S. W. BAILEY, Pittsfield, Mass.

The Cape May and Other Rare Warblers at Hatley, Stanstead County, Quebec.—The fall of 1916 will ever remain a memorable one from the fact of my having added the rare Cape May Warbler (*Dendroica tigrina*) to my list, as well as the Nashville (*Vermivora rubricapilla rubricapilla*) and Water-Thrush (*Seiurus noveboracensis noveboracensis*) two examples of the first, and one each of the two latter having been obtained. Of the Cape May five were seen between August 28 and September 12, one only of the Nashville on August 16, and one of the Water-Thrush on August 26. In addition to these a fine male Wilson's Warbler (*Wilsonia pusilla pusilla*) was obtained on August 24, the second only that I have seen here so far. Two Northern Parulas (*Compothlypis americana usneæ*) were observed on August 13, and between August 23 and September 22, nineteen examples of the Bay-breasted (*Dendroica castanea*) were noted, as well as eleven of the Blackburnian (*Dendroica fusca*) between August 11 and September 9, and twenty of the Canada (*Wilsonia canadensis*) between August 11 and September 17. Two examples of the Yellow Palm (*Dendroica palmarum hypochrysea*) were seen on May 6, and another interesting item was the finding of the Black-throated Blue (*Dendroica caerulescens caerulescens*) breeding for the first time in June and July.—H. MOUSLEY, Hatley, Que.

Breeding of the Canada Warbler in Northern New Jersey.—On June 12, 1915, Dr. Wm. H. Wiegmann and the writer observed an adult male Canada Warbler (*Wilsonia canadensis*) at Budd's Lake, New Jersey. This date is more than a week later than transients of this species are ordinarily met with. Furthermore, the low woods near the lake are characterized by a number of northern plants such as the Bunchberry, Gold-thread, Dwarf Birch, Larch and many others. There was reason to believe, therefore, that the Canada Warbler might prove to be a summer resident in this locality.

Revisiting the Lake on July 4, 1916, I was gratified to find an adult female in the same spot and am practically certain that the male also was seen. On July 8, the female was observed busily engaged in searching for food, its action indicating that it had young nearby. On the following day I was so fortunate as to discover one of the young birds only a few days out of the nest, a fluffy, brownish fledgling with a tail not more than two-thirds or three-fourths grown. It was fed by the mother bird several times while I watched.

Budd's Lake is situated among the mountains of the western part of

Morris County, at an altitude of 933 feet above sea-level. The low, moist woods that the Warblers had chosen for their home consists chiefly of Red Maple, with an undergrowth of Sweet Pepperbush, Swamp Azalea, Arrowwood, Black Alder, High Blueberry, Skunk Cabbage, Cinnamon and Royal Ferns, etc. The birds were always met near a road where the swamp was bordered by higher ground, about one-eighth of a mile from the Lake.

This is, so far as I know, the first recorded instance of the breeding of the Canada Warbler in New Jersey.—W. DEW. MILLER, *American Museum of Natural History, New York City.*

Mockingbird at West Haven, Conn.—A Mockingbird (*Mimus polyglottos polyglottos*) appeared near the center of West Haven, Conn., on November 8, 1916, and has been observed almost every day up to January 22, 1917. It usually appears with a flock of Starlings. It pays no attention to food put out for the birds but prefers to eat the berries of the Bitter Sweet and Honeysuckle vines which grow along the fence. It does not appear to be wild as on two occasions I have walked under the apple tree in which it was perched.—N. E. WILMOT, *West Haven, Conn.*

Hudsonian Chickadees at Hatley, Stanstead County, Quebec.—On October 10, 1916, I came across two examples of the Hudsonian Chickadee (*Penthestes hudsonicus* subsp.?) in the same wood as the pair recorded in 'The Auk,' Vol. 33, 1916, p. 184; and they remained there until November 12. Between these dates I saw them on ten occasions, and generally they were in the company with a few *P. atricapillus* but it was quite an easy matter to locate them from the latter by their notes alone, without seeing them, and this I often did following up the sound until a view of the birds was obtained and identification confirmed.—H. MOUSLEY, *Halley, Que.*

***Penthestes hudsonicus* at Portland, Maine.**—*Penthestes hudsonicus*, which did not come under the writer's observation at Portland during his collecting days, has twice made known to him its presence there since. On April 27, 1913, I watched a bird for three quarters of an hour as it moved about in trees and bushes at the west end of Portland,—alone most of the time but occasionally joined by a small party of Black-capped Chickadees (*P. atricapillus atricapillus*) which chanced to be in the neighborhood. Another bird passed much of the afternoon of October 27, 1913, near my house on Vaughan Street, Portland, and was identified only by its frequent call-notes. Since no specimens of *P. hudsonicus* are in existence from Portland or its vicinity, so far as I am aware, it seems best at present not to express an opinion as to the subspecies which was represented by these birds.—NATHAN CLIFFORD BROWN, *Portland, Maine.*

"**One of the Rarest Birds.**"—Under this caption Dr. Hartert (Novit. Zool., XXIII, Dec., 1916, 335-336, pl. 1) has recently given a brief history,

with a colored plate, of the supposed unique type of *Callaeops periophthalmica* Ogilvie-Grant, a bird purchased in Manila by the late John Whitehead, and now in the Tring Museum. Mr. Ogilvie-Grant compared the bird with *Arses*, but Whitehead thought it nearest to *Terpsiphone*, while Dr. Hartert affiliates it with *Xeocephus*. The latter ends his account with a reference to the literature of the species, omitting, however, two statements by McGregor which have much to do with the case. In the Philippine Journal of Science, II, A, No. 5, Oct., 1907, 340-342, pls. I-III, Mr. McGregor described *Terpsiphone nigra*, from Batan Island, north of Luzon, where he found it an abundant species. He called attention to its similarity to *Callaeops*, saying "It also agrees with the meagre description of *Callaeops periophthalmica* Grant; the latter, however, has no lengthened central rectrices and the type may be a young bird." In the 'Manual of Philippine Birds,' Part 2, p. 467, he says, "The short-tailed black males of this flycatcher agree with the description of *Callaeops periophthalmica*, but the identity of the two species has not been established." At the first place cited he mentions the fact that the type of *Callaeops* was shot "with a blow gun at Malabon, near Manila," a locality, he adds, "entirely unsuited to birds of this kind."

On comparing some topotypes of *Terpsiphone nigra* with the plate of *Callaeops*, I find Mr. McGregor had good reason to suspect the identity of the two supposed species. In color they are identical, except for slight differences in the under tail-coverts; the appearance of the fleshy eye-ring is the same, and there are no differences in size or proportions aside from the length of the middle tail feathers. The last may be explained on the ground that *T. nigra*, like some (possibly all) of the species of *Terpsiphone*, probably has a non-breeding plumage in which the males become short-tailed birds, as in *Diatropura* and some other groups. Oates (Fauna Brit. India, Birds, II, 1890, 46) says of *T. paradisi*, "the median tail-feathers grow to a great length, and are retained till May or June, when they are cast." Of *T. affinis*, he writes "the male after the moult of the second autumn acquires two long median tail-feathers, but probably sheds them at the end of the breeding-season." McGregor visited Batan Island at the end of May, when the birds were nesting, and the males collected by him are chiefly long-tailed ones. The date of capture of the type of *Callaeops* has not been recorded.

Terpsiphone nigra, in full long-tailed plumage, has the next to the middle pair of rectrices considerably lengthened, as noted in the original description. This character I do not find in *T. princeps* (sometimes called *atrocaudata*, but the description of *Muscipeta atrocaudata* Eyton applies better to '*Callaeops*' than to *T. princeps*, and the type ought to be examined, if still extant) or *T. owstoni*, which appear to be its nearest relatives. These species, as well as a number of others examined in this connection all have fleshy rings round the eyes, and Hartert's remark that *Callaeops* "would thus only differ from all forms of *Tchitrea* [i. e., *Terpsiphone*] in having the ring or "wattle" of bare skin round the eyes" is quite misleading, as is also his reference to *Xeocephus* as its "real nearest relative."

As a result of the above comparison, I am convinced that the identity of the two alleged species is established beyond reasonable doubt, and that the bird is generically the same as *Terpsiphone*, at least that group containing *princeps*, *owstoni*, and doubtless *illex* (the last not seen by me). Finally, as Mr. McGregor described the adults, immature and young, the nest and egg, as well as the flight, song and native name of the bird, Dr. Hartert's remark that "the efforts of the industrious American ornithologists who have been working for years in the Philippine Islands should have brought it to light again ere this" has been fully met.—CHAS. W. RICHMOND, *Washington, D. C.*

Townsend's Solitaire (*M. townsendi*) at *Seattle, Wash.*—Although not rare in this immediate locality, Townsend's Solitaire is rather infrequently met with. This winter however, we have found it not at all uncommon, on one occasion five being seen feeding on the berries of the Madrona tree and associated with numbers of the Western Robin and Varied Thrushes.—S. F. RATHBUN, *Seattle, Wash.*

Winter Birds at Hatley, Stanstead County, Quebec.—The winter of 1916-17 is certainly proving an interesting one, for after an interval of three years Pine Grosbeaks (*Pinicola enucleator leucura*) have again visited the district. I first noticed them in my garden on December 16. Two females (out of which one was obtained) of the White-winged Crossbill (*Loxia leucoptera*) a species new to my list, were observed on the early date of August 31, and a flock of fifteen again on October 27. Redpolls (*Acanthis linaria linaria*) have been plentiful, first arriving on November 5, but Pine Siskins (*Spinus pinus*) and Evening Grosbeaks (*Hesperiphona vespertina vespertina*) have not put in an appearance as yet. Snow Buntings (*Plectrophenax nivalis nivalis*) arrived on November 14, and an example of the Sharp-shinned Hawk (*Accipiter velox*) was seen on December 19. Two Hudsonian Chickadees (*Penthestes hudsonicus* subsp.?) were seen on several occasions between October 10 and November 12, and on January 10 an example of the Northern Shrike (*Lanius borealis*) was obtained.—H. MOUSLEY, *Hatley, Que.*

Unusual Late Autumn and Winter Records for Eastern Massachusetts.—On the 15th of November, 1916, Dr. W. M. Tyler and I discovered a Cape May Warbler (*Dendroica tigrina*) in the town of Belmont, Mass., and we found it again in the same place on the 19th and 25th of the same month. In this region, on the 9th of December, 1916, we saw a Palm Warbler (*Dendroica palmarum palmarum*). Mr. H. W. Wright had seen one of these birds (probably the same individual) in this neighborhood on the 9th of the previous month. On the 25th of February, 1917, Mr. Charles W. Jenks showed me a Fox Sparrow (*Passerella iliaca iliaca*) wintering in Bedford, Mass., where it had been under observation since the 6th of January.—WALTER FAXON, *Lexington, Mass.*

Rare Winter Visitants in the Vicinity of Plainfield, New Jersey.—

The past winter has been the most interesting, ornithologically, in the writer's local field experience of more than twenty years. The following five rare winter visitants are the most noteworthy species observed.

EVENING GROSBEAK (*Hesperiphona vespertina vespertina*). A pair of Evening Grosbeaks were observed in a grove of cedars on December 17, 1916, and the female was still present on December 25. This cedar grove is in the Washington Valley near Scotch Plains, and is the spot in which Evening Grosbeaks were found in January and February, 1911, my only other record of this species (see Bird-Lore, Vol. XIII, 1911, p. 95). It may be well to record that a male was collected on February 12, and a female on February 19, 1911. As on former occasions the Grosbeaks were feeding on the drupes of the Flowering Dogwood, particularly on the kernel, but probably to some extent on the pulp also.

PINE GROSBEAK (*Pinicola enucleator leucura*). In the same cedar grove a female Pine Grosbeak was seen on December 31, 1916, and on January 28, 1917, two females were present. On February 11 only a single female could be found. On all three occasions they were eating the Red Cedar berries in company with Purple Finches. My only previous records of this species were made in the winter of 1903-4. A number of specimens were collected on January 4, 1904.

RED CROSSBILL (*Loxia curvirostra minor*). No White-winged Crossbills have been observed during the winter to date of writing (February 16) and Red Crossbills have been noted but twice, a single bird on December 10, and another on December 24, 1916. Both were flying over, the characteristic "kip kip" serving to identify them. It is probable that there would have been more Crossbills in this region but for the local scarcity of spruce and pine cones this season.

REDPOLL (*Acanthis linaria linaria*). Redpolls have been more abundant than ever before in my experience. They were observed on numerous occasions from late November to February 11. The largest number was recorded on December 25 when about 120 were counted. The seeds of the White Birch constitute their chief food. An adult male collected on January 1 agrees with *A. l. linaria* in size, but is decidedly less brown above than typical specimens of that form. It is now in the collection of Dr. Jonathan Dwight.

LABRADOR CHICKADEE (*Penthestes hudsonicus nigricans* Townsend). On December 17, 1916, a couple of Labrador Brown-cap Chickadees were discovered in the same cedar grove, in which the Pine and Evening Grosbeaks were found. One was seen in the same spot on December 25, and on the 31st both birds were again met with. On the latter date one bird, a female, was collected. This specimen has been identified by Dr. Charles W. Townsend as belonging to his recently described Labrador race. Later dates for the remaining individual are January 14 and 28. On January 7, a single bird of this species was seen on the north side of the Third Watchung Mountain between Plainfield and Stirling. Judging by its dark cap it also

was *P. h. nigricans*. On February 4 in company with Mr. C. H. Rogers, another individual was met on the First Mountain between Westfield and Summit.

In every case the Labrador Chickadee was associated with larger numbers of the Black-cap Chickadee. The bird seen on January 7 was accompanied by three Tufted Titmice also. No form of *Penthestes hudsonicus* has ever before been recorded from New Jersey.—W. DEW. MILLER, Plainfield, N. J.

Notes from Madison, Wisconsin.—RED-THROATED LOON (*Gavia stellata*). On June 7, 1916, a loon was seen on Lake Mendota that at once attracted attention by its small size. The bird was not more than one hundred yards from shore and by a cautious approach I was able to study it carefully. Although in winter plumage, the character of the bill left no doubt but that it was of this species.

RED-BELLIED WOODPECKER (*Centurus carolinus*). A male was seen at frequent intervals in the immediate vicinity of my home from January 3 to May 20, 1916. Possibly the same bird was again noted from October 4 to October 8. Not noted during the summer months.

WESTERN MEADOWLARK (*Sturnella neglecta*). On April 13, 1916, a Western Meadowlark alighted on a fence a short distance away and sang for several minutes. The writer at one time spent several months in western Texas and adjoining regions where the thoroughly characteristic song of this species could be heard almost daily. The following quotation with the exception of (this) is taken verbatim from Kumlein and Hollister—'Birds of Wisconsin.' "It is found regularly in Rock, Jefferson and Dane (this) counties, but only (?) in very late fall, November and even December, but not having as yet been noted in spring." It is probable that most observers will consider it uncommon at any season.

HARRIS'S SPARROW (*Zonotrichia querula*). One seen on May 11, 1916.—A. W. SHORGER, Madison, Wisc.

Notes from North Carolina.—The writers spent from December 30, 1916, to January 1, 1917, on and around Monkey Island, Currituck Sound, North Carolina, studying the winter bird-life of the region. Three observations are worthy of record.

REDPOLL (*Acanthis linaria* subsp.). Two observed on December 31, 1916, feeding on the beach opposite Monkey Island, in company with Ipswich and Savannah Sparrows. They were so tame as to permit an approach within ten feet. One was heard in the same place the next day. Mr. T. Gilbert Pearson informs us this is the second record for the State. As we had no means of collecting a specimen, it is impossible to state definitely to which subspecies the birds belonged. They were noticeably smaller than the Sparrows with which they were associated, and the presumptive evidence is of course strongly in favor of their being straight *linaria*.

ORANGE-CROWNED WARBLER (*Vermivora celata celata*). A single bird was very satisfactorily observed December 31, on Monkey Island in a grove of live oaks, by Johnson and Griscom. Readers of 'The Auk' may recall that Nichols and Griscom collected a specimen in the same locality January 3, 1915. Although this is only the fourth record for the State, the conditions on these outer islands are so similar to those obtaining farther south where the species is known to be a regular winter resident, that we should not be surprised to find it of regular occurrence in North Carolina. (See Wright, H. W., Auk, January, 1917.) It should be borne in mind that no other eastern warbler known to us is so inconspicuous and so easily overlooked.

BLUE-GRAY GNATCATCHER (*Polioptila caerulea caerulea*). A single bird of this species was seen on Monkey Island on December 30, and heard December 31, entirely normal and active. Mr. Pearson kindly informs us that this is the first winter record for the State. As with the Orange-crowned Warbler, however, we should not be surprised to have it recorded more frequently in winter along the coast should the number of competent observers increase. Barring a specimen observed by Mr. Horace W. Wright in Boston on December 3, 1910, which may be regarded as purely casual, this is the most northern winter record known to the writers.—J. M. JOHNSON, J. T. NICHOLS and LUDLOW GRISCOM, *New York City*.

Acknowledgment.—In our description of a new subspecies of the Western Meadowlark, *S. n. confluenta*, which appeared in the January, 1917, number of 'The Auk', we inadvertently omitted to make acknowledgment to Mr. D. E. Brown of Seattle, for the loan by him of certain specimens that were used in connection with the preparation of the paper, and we, therefore, herewith wish to express to him our sincere thanks for his courtesy in this respect.—S. F. RATHBUN, *Seattle, Wash.*

RECENT LITERATURE.

The Allen Bibliography.¹—A most welcome addition to bibliographic literature is the catalogue of the published scientific writings of Dr. J. A. Allen. We feel sure that all readers of 'The Auk' will heartily endorse the foreword by Prof. Henry Fairfield Osborn in which he states that the life and writings of Dr. Allen "have exerted so great an influence on the progress of ornithology and mammalogy in America that all who have the interest of these branches of science at heart, both in this country and abroad, will welcome this biographical and bibliographical volume." "It is issued" he adds "as an expression of the appreciation of Doctor Allen's life work by the Trustees of The American Museum of Natural History and his devoted colleagues on its Scientific Staff".

The total number of titles amounts to 1453, of which 966 relate to birds, the other topics covered being mammals, reptiles, zoögeography, nomenclature, and biography. Of mammals he has described no less than 573 new forms and 21 new genera and subgenera, while of birds he has named 49 new forms and 4 new genera. These figures alone will give some idea of the tremendous amount of work that Dr. Allen has accomplished and a perusal of the titles themselves will further emphasize the breadth of his knowledge and the part that he has played in developing his favorite branches of science.

By far the most interesting portion of the volume, however, is the delightful autobiographical sketch which precedes the bibliography. Others can express their appreciation of a man's life work and set forth its value to the world, but no one can describe the conditions under which it developed or the factors that contributed to its growth, so well as the man himself. We are therefore, under obligations to Dr. Allen for this sketch which is most interesting reading and rich in historical detail, much of which probably no one but Dr. Allen could furnish at this late day.

To quote again from Prof. Osborn's foreword: "we are sure that naturalists in all parts of the world will unite in felicitating Dr. Allen on the great work which he has accomplished and in wishing him many more years of strength and activity".—W. S.

Thorburn's 'British Birds'.²—With the third and fourth volumes of Mr. Thorburn's splendid work before us, another of the many books

¹ Autobiographical Notes and a Bibliography of the Scientific Publications of Joel Asaph Allen. Published by the American Museum of Natural History, New York. 1916. Svo. pp. 1-215, frontispiece portrait.

² British Birds | written and illustrated by | A. Thorburn, F. Z. S. | With eighty plates in colour, showing over four hundred species. | In four volumes | Vol. III | Longmans, Green and Co. | 39 Paternoster Row, London | Fourth Avenue & 30th Street, New York | Bombay, Calcutta, and Madras | 1916. | All rights reserved. | Large 4to. pp. 1-87, pll. 41-60. Vol. IV. 1916. pp. 1-107, pll. 61-80. [Price \$10. per volume, net.]

dealing with the birds of Great Britain is brought to completion. The bird life of any country appeals to such a large number of people, that there will doubtless always be a demand for bird books which present the subject in an attractive manner. There have appeared during the last century and a quarter, the 'British Birds' of Bewick, Yarrell, Selby, MacGillivray, Gould, Lilford and others of lesser prominence, and some of these have gone through many editions, edited and amplified by ornithologists quite as notable as the original authors.

Each author has approached the subject in his own manner. Some, like MacGillivray, have made the text their main interest, and there is little doubt but that Dr. Coues, who was a great admirer of MacGillivray, got from his writings the idea of his famous 'Key'. Others who like our own Audubon were artists first and authors of necessity, have been mainly interested in the plates and some of them indeed did not write the text of their works at all.

Mr. Thorburn belongs to this latter, artist, class and as we explained in reviewing the earlier volumes of his work¹ he originally intended that it should be simply "a sketch-book of British Birds" but was induced later to write a short account of each species which is admittedly largely a compilation. It is from the standpoint of the plates, therefore, that his work is to be judged and we think that on this basis it stands ahead of anything of the kind that has been produced. Bewick and Yarrell were noted for the beauty of their woodcuts, those of the former being executed by himself, those of the latter by Thompson. In comparing the two a reviewer in the 'Report of the British Association' for 1844 states that the beauty of the latter is "much enhanced by the improvements in the preparation of paper and ink and in the mode of taking off the impressions," and adds that were Bewick's blocks "intrusted to one of our first rate London printers an edition could be now produced, far superior to any which was issued in the lifetime of the author." This fact must be borne in mind when considering the relative merits of colored plates and we think that Mr. Thorburn has been most fortunate in his engravers. The softness of the plates and the delicate gradation of the colors we have not seen excelled in any ornithological work, and one has to look close to be convinced that they are really produced by the 'half-tone' process. While it would be interesting to see the paintings of some of the other British artists reproduced with the same excellence, we do not think that Mr. Thorburn would have any difficulty in holding the foremost position. He and Mr. Fuertes stand apart from all others except Audubon in the thoroughness of their knowledge of the activities and postures of the birds which they represent. Many an artist can paint what has been aptly termed a "map" of a bird, accurate in proportions, colors etc., but it is quite another thing to give to each bird that individuality of pose or action which characterizes its species, and this is what Thorburn and Fuertes have done.

¹ 'The Auk,' January, 1916, p. 84.

The two volumes before us cover the water birds (except the Steganopodes and one plate of Herons, which appeared in Vol. 2), the Gallinaceous Birds and Pigeons. The Ducks, Pheasants and Grouse give the artist his best opportunities and he has prepared some superb plates. As in all such works the pleasure which we derive from the beautiful pictures is mingled with regret that it is not possible to give each species a plate to itself instead of having to crowd so many together. This is, of course, not the artist's fault and as we said in connection with the earlier volumes he has displayed wonderful ability in grouping his subjects, so that each plate appears as a single finished painting, while each figure is displayed to the best possible advantage.

All in all we think that Mr. Thorburn's work will take its place as the best series of colored illustrations of British birds that has yet appeared, and is a work that should be in all reference libraries. It will appeal moreover to many lovers of the beautiful in art and in illustration, to whom birds are of only secondary interest.—W. S.

Evans' 'Birds of Britain.'¹—"This little work" we are told in the preface "though primarily intended for schools, may be found useful by those who require a short hand-book which includes the results of the most recent observations." With such a plan and with an author of Mr. Evans' reputation and ability we are led to expect an authoritative and thoroughly up-to-date treatise. This expectation has apparently been realized in the main text, but a perusal of the introductory chapter covering the more general principles of ornithology, is decidedly disappointing.

In his treatment of migration the author has nothing to say of the work of the late W. W. Cooke, while he seems to be quite ignorant of the experiments of Dr. J. B. Watson, with terns on the Dry Tortugas islands, which have probably thrown more light on the subject of migration than any other recent investigation. The time-honored causes of migration—changes of temperature and abundance of food supply—are cited, but no mention is made of periodic physiological activities; while the statement that "Hardy birds such as Penguins... need hardly migrate at all," does not accord with the accounts of the recent Antarctic expeditions, in which regular migrations covering hundreds of miles, from the pack ice to the nesting grounds, are described.

The half-tone illustrations are of varying merit and unfortunately we are not told which are photographs from nature and which from mounted specimens. In some the figures are so minute as to be of little value and this obscurity has led to the printing of the cut of the Spotted Flycatcher upside down.

The book will, however, prove of much value in spreading a knowledge of the British avifauna, which after all is its chief object.—W. S.

¹ *The Birds of Britain, their Distribution and Habits.* By A. H. Evans. Cambridge, 1916. Small 8vo., pp. 1-275, numerous text figures. \$1.25. (G. P. Putnam's Sons.)

Todd on New Birds from Colombia and Bolivia.¹— 'The Auk' has on several occasions felt compelled to take exception to the wholly inadequate diagnoses which some authors issue as the basis for new names. From the letters received from many prominent ornithologists we are assured that our stand is endorsed by the great majority of those who have the advancement of ornithology at heart. We regret exceedingly to have to revert to the matter again, but in a recent paper by Mr. Todd, we find new names proposed without adequate descriptions some of which have already proved stumbling blocks to others, working in the same field, the progress of ornithology being thus hindered instead of advanced.

These diagnoses are styled "preliminary," but both author and publishers know that a name must stand upon the original description, that is the one to which our reference leads us, and in the majority of cases we do not know whether supplementary diagnoses have appeared or not, and even if they have we are compelled in involved cases to rely upon the original diagnosis alone, additional information given subsequently may refer to the original species or it may not.

Why — and we ask in all seriousness — cannot all who are engaged in systematic work realize, as most of them do, that they are under a serious obligation to their fellow workers in making their descriptions as clear and definite as they possibly can, supplying measurements and comparisons with all related forms, so as to make the consultation of types a last resort instead of, as it often is, the only method of determining what a writer is naming?

It is we think high time that all ornithologists realize the seriousness of the work in which they are engaged or they will become the laughing stock of other systematists. In the volume of the 'Proceedings of the Biological Society of Washington' in which this paper appears there are new species of mammals, birds, reptiles, ophiurans, fossil insects, mollusks, etc. all well described. Why cannot the journal insist upon the same standard for all the diagnoses which appear on its pages? Some time ago there was a general agreement among American scientific publications that they would publish no new genera unless types were designated by the authors. If a similar stand were taken with regard to new species by refusing to publish "preliminary" or inadequate diagnoses systematic ornithology would be greatly benefited. If neither authors nor editors will realize the seriousness of this matter there will ere long be a call to revise the Code of Nomenclature so that the citation of a type specimen will not save a wholly inadequate description from the unidentifiable category.

The new names proposed by Mr. Todd in this paper are as follows: From Bolivar, Colombia: *Phenicothera rubiginosus* (p. 3) Turbaco; *Myiobius modestus suffusus* (p. 4) Turbaco; *Attila caniceps* (p. 4) Jaraquiel; *Xiphocolaptes procerus rostratus* (p. 5) Jaraquiel; *Phæochroa cuvierii* notia

¹ Preliminary Diagnoses of Apparently New Birds from Colombia and Bolivia. By W. E. Clyde Todd. Proc. Biol. Soc. of Washington, Vol. 30, pp. 3-6. January 22, 1917.

(p. 5) Turbaco; *Celeus innotatus* (p. 5) Jaraquiel; *Bubo virginianus elutus* (p. 6) Loric; *Pyrrhura subandina* (p. 6) Jaraquiel; *Eupsychortyx decoratus* (p. 6) Calamar; from Santa Marta, Colombia: *Ostinops decumanus melanterus* (p. 3) Las Vegas; *Icterus mesomelas carrikeri* (p. 4) Fundacion; *Eupsychortyx cristatus littoralis* (p. 6) Mamotoco; from Bolivia: *Ostinops sincipitalis australis* (p. 3) Buenavista; *Attila neoxenus* (p. 4) Rio Yapacani; *Microrhopias melanogastri iliaca* (p. 5) Rio Pilcomayo; *Xiphocolaptes obsoletus* (p. 5) Rio Yapacani. *X. major obscurus* is also proposed (p. 6) as a substitute for *X. m. saturatus* Cherrie preoccupied.—W. S.

Grinnell on the Evening Grosbeak.¹—Just at the time when the eastern race of this erratic bird is attracting attention through the New England and Middle States, by a southward migration of unprecedented extent, Dr. Grinnell gives us the results of a prolonged study of the relationship of the western birds which he considers are divisible into four geographic races instead of two, as given in Ridgway's 'Birds of North and Middle America.' No matter how many races we may decide to recognize we must agree with Dr. Grinnell's contention that the type of *Hesperiphona vespertina montana* was definitely fixed on the plate which accompanies the original description in 'The History of North American Birds,' and that this name belongs to the Mexican bird; Chapman's *H. v. mexicana* becoming a pure synonym. Furthermore Dr. Grinnell finds that birds from the mountains of extreme southern Arizona agree with the Mexican race rather than with that of the Rocky Mountains, which brings this southern form into the limits of the A. O. U. Check-List.

The birds from farther north — representing '*montana*' of the Check-List — he divides into three races: *H. v. brooksi* (p. 20), from British Columbia, type locality, Okanagan; *H. v. californica* (p. 20), from the Sierra Nevada of California north into Oregon, type locality, Crane Flat, Mariposa Co., Cal., and *H. v. warreni* (p. 210), southern Rocky Mountains from Colorado to northern Arizona, type locality, Colorado Springs.—W. S.

Brooks' 'Game Birds of West Virginia.'²—Nearly half of the fourth 'Biennial Report of the Forest, Game and Fish Warden of West Virginia' is devoted to an account of the game birds by Mr. E. A. Brooks, consulting ornithologist to the warden. The eight chapters of this excellent report cover the subjects of forest conditions as related to game birds; hunting game birds; economic value of game birds; propagation; protection; and description of the game birds of the State.

¹The Subspecies of *Hesperiphona vespertina*. By Joseph Grinnell. The Condor, Vol. XIX, January, 1917, pp. 17-22.

²The Game Birds of West Virginia. By Earle A. Brooks. Fourth Biennial Report of the Forest, Game, and Fish Warden of West Virginia. 1915-1916. July 1, 1916. pp. 93-160.

The list of game birds contains not only descriptions and other information of value to the general reader and sportsman, but a discussion of the distribution of each species in the State including a large number of original records. The report forms another valuable addition to the literature of West Virginian ornithology and a work that can be consulted with profit by anyone interested in the history of American game birds, either from the point of view of the sportsman or the naturalist. A number of interesting photographs illustrate Mr. Brooks' paper the most noteworthy from an ornithological standpoint being a set of four eggs of the Duck Hawk on a ledge on the Great Cacapon River and a nest with three eggs of the Mourning Dove.—W. S.

Forbush's recent Bulletins on Economic Biology.—The Massachusetts State Board of Agriculture has recently issued a valuable Bulletin on 'The Natural Enemies of Birds,'¹ by Edward Howe Forbush, State Ornithologist. The balance of nature, a matter that is too often ignored in the present day enthusiasm for bird protection, is first considered, and then follows a detailed discussion of the several classes of bird enemies; mammals — domestic and wild; birds and reptiles.

Mr. Forbush rightly divides bird enemies into two groups "(1) Those introduced from foreign countries and which therefore tend to disturb the balance of nature, and should be eliminated so far as possible except when under control, either in domestication or in captivity. Such are the dog, house rat, ferret, cat, hog, ox, horse, sheep and goat, English Sparrow and Starling. (2) The native natural enemies, which have through thousands of years become perfectly adjusted in their relation to the species on which they prey. These should not be eliminated, with the exception of those few that threaten our lives or our material welfare, but should be conserved and controlled according to our needs. When a species becomes too numerous it should be reduced in numbers, if too few it should be allowed to increase."

The ninth annual report of the State Ornithologist² presents much matter of interest to those who are trying to interest the public in methods of practical bird protection, while another edition of Mr. Forbush's admirable Bulletin on 'The Domestic Cat'³ testifies to the demand for this publication and the awakening of the public mind to a serious consideration of the cat question. Arrangements have been made to supply this Bulletin to Audubon societies which may desire it for distribution.—W. S.

¹ The Natural Enemies of Birds. By Edward Howe Forbush. Economic Biology — Bulletin No. 3. Mass. State Board of Agriculture. 1916. pp. 1-58.

² Ninth Annual Report of the State Ornithologist, Mass. State Board of Agriculture, for the year 1916. By Edward Howe Forbush. December 6, 1916. pp. 1-26.

³ cf. Auk, 1916, p. 339.

A Bibliography of British Ornithology.¹—Three more parts of this work which was first noticed in 'The Auk' 1916, p. 443, have since appeared carrying it well through the letter 'R'. Among the most interesting of the biographical sketches are those of Latham, MacGillivray, and Pennant. The first we learn was a strict disciple of the Linnæan School, and strongly prejudiced against the growing innovations upon his master's nomenclature, which were even then being made on the Continent. Latham's plan to describe all known birds, while thoroughly commendable, was too great for his talents, especially when we consider the vast number of new birds quite unknown to Linnæus which were at this time pouring into the museums of Europe. Of MacGillivray, whose collaboration with Audubon brings him into close connection with American ornithology, it is sad to learn that no detailed biography has ever been written and that the materials for such do not now exist. Pennant a descendant of a distinguished Welsh family united more than an average ability as a naturalist with the reputation of an elegant scholar and refined gentleman.

In glancing over the long list of the contributors to British ornithology one is struck by the very small number of titles from the pens of many of the foremost bird students that England has produced — such as Godman, G. R. Gray, Gould, etc. These men labored almost entirely in wider fields, leaving the British avifauna to others who preferred to concentrate their attention on the home birds, and who in consequence are for the most part but little known to the world at large.

The excellent typography of the first part of the work is fully maintained and when finally bound up it will form a handsome volume as well as a storehouse of information.—W. S.

Cory on New South American Birds.²—In a recent publication Mr. Cory describes three new subspecies of South American birds from the collections of the Field Museum of Natural History, as follows: *Nyctipolus hirundinaceus cearæ* (p. 4) Quixada, Ceara, Brazil; *Scardafella squammata cearæ* (p. 6), same locality and *Leptotila ochroptera approximans* (p. 7) Serra Baturite, Ceara, Brazil. There is also discussion on the races of *Nyctipolus hirundinaceus* and on the southern forms of *Speotyto cunicularia* and some further remarks on the author's *Piaya cayana venezuelensis*.—W. S.

Oberholser on the Birds of Bawean Island.³—In this paper Mr. Oberholser describes a collection made by Dr. W. L. Abbott on Bawean Island, in the Java Sea about 175 miles south of Borneo. The collection

¹ A Bibliography of British Ornithology from the Earliest times to the End of 1912. By W. H. Mullins and H. Kirke Swann. MacMillan and Co. 1916. Svo. Pts. II-IV, each 6/net.

² Notes on Little Known Species of South American Birds with Descriptions of New Subspecies. By Charles B. Cory. Field Museum of Nat. Hist. Publ. 193. Zoological Series, Vol. XII, No. 1. January 25, 1917. pp. 3-7.

³ The Birds of Bawean Island, Java Sea. By Harry C. Oberholser. Proc. U. S. Nat. Mus., Vol. 52, pp. 183-198. February 8, 1917.

which was made in 1907, comprises fifteen species, eight of which had not been previously known from the island, and which bring the total number of its bird fauna up to 26.

Seven of the forms represented in Dr. Abbott's collection prove to belong to undescribed races which are here named and diagnosed by Mr. Oberholser as follows: *Spilornis bassus baweanus* (p. 185); *Sauropatis chloris cyane-cens* (p. 189); *Strix baweana* (p. 190); *Microtarsus atriceps abbotti* (p. 193); *Malacocincla abbotti baweana* (p. 194); *Gracula javensis baweana* (195); and *Anthreptes malacensis baweanus* (p. 196).

In a footnote Mr. Oberholser discusses the question of family names and argues that the name Bubonidae should not be changed to Strigidae simply because the name *Strix* (of earlier date than *Bubo*) is found to be applicable to the genus formerly known as *Syrnium*, and hence takes its place in the family Bubonidae. In other words a family should take its name, not from the oldest generic name in the family but from the genus upon which the family was originally founded. It follows that the family name need only be changed when the name of the "type genus" is changed. This seems to be a sound argument and if followed will avoid some very undesirable and misleading changes.—W. S.

Wetmore on Secondary Sexual Characters in the Ruddy Duck.¹—

In dissecting some Ruddy Ducks Mr. Wetmore was able to verify the statement, first made by Macgillivray, that in this species the *bullæ ossea* usually present in the trachea of the males of river and sea ducks, was entirely absent. Carrying his investigations further he discovered a remarkable tracheal air-sac which is used when the males are displaying during the mating season. The presence of this sac is responsible for the full and loose condition of the skin of the neck in this species, which renders it possible to slip the head through it when skinning a specimen, something which is quite impossible in our other ducks. Upon examining skins of other members of the subfamily Erismaturinae he found the same condition of the neck skin in other species of *Erismatura* as well as in *Thalassornis* and *Nomonyx*.

Mr. Wetmore's studies are particularly welcome as we are badly in need of more knowledge of the anatomy of birds in arriving at a true understanding of their systematic relationships. The field is a large one but for some reason or other has not been attractive to ornithologists. We hope that Mr. Wetmore may receive every encouragement to continue his investigations along these lines.—W. S.

Mathews' 'Birds of Australia.'²—The first part of volume six which is now before us begins the treatment of the Parrots, a group of birds

¹ On Certain Secondary Sexual Characters in the Male Ruddy Duck, *Erismatura jamaicensis* (Gmelin). By Alexander Wetmore. Proc. U. S. Nat. Mus., Vol. 52, pp. 479-482. February 8, 1917.

² The Birds of Australia. By Gregory M. Mathews. Vol. VI, Part I. November 22, 1916.

abundantly represented on the Australian continent and closely associated with it in ornithological history. This number covers the Lories (Trichoglossoidæ), the Lorilets (Opopsittidæ), the Palm Cockatoos (Proboscigeridæ), and the Black Cockatoos (Kakatoeidæ — in part). The discussion of the nomenclature of both genera and species is as usual very full, and there is an historical résumé of the systematic literature of the entire group of Parrots.

Now that Mr. Mathews has reached families that are largely limited to the country of which he writes, or those in the same region, there are but few extra-limital forms discussed and fewer far-reaching changes in nomenclature. We note the following new names in this installment of the work: *Parripsitta* subgen. nov. (p. 43), type *Psittacus pusillus* White; *Nannopsittacus* gen. nov. (p. 65), type *Cyclopsitta suavisima* Selater; *Probosciger aterrimus oorti* subsp. nov. (p. 94), type locality, Dutch New Guinea. There is an elaborate discussion of the geographic races of the great black Palm Cockatoos and their proper nomenclature, which throws much light on a vexed question.—W. S.

Origin of the Generic Name *Æthia*.¹—Dr. E. Hartert has recently called attention to the fact that the name *Æthia* adopted in the last edition of the A. O. U. Check-List in place of *Simorhynchus*, should be cited from Merrem (Versuch eines Grundnisses zur Allgemeinen Geschichte und natürlichen Eintheilung der Vögel, Leipzig, 1788) instead of from Dumont (Dict. Sci. Nat., revised edition, I, 1816, Suppl., 71). This is a very welcome addition to our knowledge of the history of the name, but Dr. Hartert seems rather severe in his criticism of the A. O. U. Committee for not running the name back to its original source.

The writer is responsible for calling attention to the name (see Auk, 1907, p. 190) and so far as he is aware it had not been quoted by any ornithologist except Dumont, which would indicate that Merrem's work referred to by Dr. Hartert as "well known but somewhat scarce," is decidedly less well known than he seems to think. It is moreover not to be found in the libraries of either Philadelphia or Washington. Dr. Hartert asks: "Why was no search made for Merrem's name?" The writer would reply that a search was made. Sherborn's 'Index Animalium' was consulted and while the work cited by Dr. Hartert was found it is stated that it contains no new species and as the name *Æthia* is not listed by Sherborn, it was a natural inference that it did not occur in the work.

Curiously enough Dr. Hartert corroborates Sherborn by stating that the German work contains only vernacular names but adds that *Æthia* occurs on page 7 of a Latin edition which he quotes as 'Tentamen Naturalis Systematis Avium.' This work seems to be less known than the other, although what appears to be the same thing is quoted by Engelmann and

¹ On the Name of the "Auklets." By Ernst Hartert, Ph.D. Novitates Zoologicae. XXIII, No. 3, p. 339. December 1, 1916.

some old reviews as 'Primæ lineæ ornithologiæ.' As Dr. Hartert has the advantage of having access to a copy of the work we should be glad to know which is the correct title of the Latin work; also why it is necessary to quote the name from the German edition; and why he quotes the date as 1788 instead of 1787 which is given by both Sherborn and Engelmann as the date of Volume I. It would benefit those interested in 'priority hunting' for which Dr. Hartert states that he has "no time," if he would also tell us what other new names, if any, the work contains thus supplying a valuable addition to Sherborn's list. It might be remarked that from the way in which Dr. Hartert gives the "correct quotation" for *Æthia*, it would appear that the Latin edition was part of the German one but if this were the case we cannot understand how Sherborn missed the name.

With Dr. Hartert's opinion that the adoption of the name from Dumont is quite impossible we cannot agree. The specific name *cristatella* had been applied to but one Auk-like bird, *Alca cristatella* Pallas, and the indication of this species as the type of *Æthia* is, we think, perfectly clear.—W. S.

Bird Enemies of a few Insect Pests.—The following statement about the bird enemies of grasshoppers is made in Farmers' Bulletin 747, prepared in the U. S. Bureau of Entomology: "The Bureau of Biological Survey has found that wild birds play a great part in the natural control of grasshoppers. These feathered friends of man are always present where grasshoppers abound and work almost constantly in aiding the farmer. The statement that all birds feed upon grasshoppers is so near the absolute truth that it needs only insignificant modifications. From the largest hawks to the tiny hummingbird there are no exceptions other than the strictly vegetarian doves and pigeons. Although birds of all families prey upon grasshoppers, the following may be selected as the most important destroyers of grasshoppers for their respective groups: Franklin's gull, bobwhite, prairie chicken, red-tailed, red-shouldered, broad-winged, and sparrow hawks, the screech and burrowing owls, yellow-billed cuckoo, road-runner, nighthawk, red-headed woodpecker, kingbird, horned lark, crow, magpie, red-winged and crow blackbirds, meadowlark, lark bunting, grasshopper and lark sparrows, butcher bird, wren, and robin." ¹

It is not possible to present as good an account of the bird enemies of many other pests for birds are particularly fond of grasshoppers. Another injurious insect recently published upon by the Bureau has its bird enemies however, and the statement is made that:

"Among the important enemies of the fall army worm are our common wild birds. Some of these are the following: Crow blackbird or grackle, yellow-headed blackbird, chipping sparrow, bluebird, mockingbird, and meadowlark." ²

¹ Walton, W. R., Grasshopper Control in relation to Cereal and Forage Crops. Farmers' Bull. 747, October, 1916, pp. 11-12.

² Walton, W. R. and Luginbill, P. The fall army worm or "grass worm," and its control. Farmers' Bull. 752, Nov., 1916, p. 12.

Birds are also given considerable credit as predators upon the common cabbage worm. The species which "are known to feed upon cabbage worms are the chipping sparrow, English Sparrow, and house wren. It is certain, however, that other species eat them, and in one case it was found that during the winter the number of pupæ of the cabbage butterflies was reduced more than 90 per cent by birds feeding upon them."¹

This is high praise for the birds and gives them commanding rank among predacious enemies of the cabbage worm. In the case of another injurious insect also, the velvet-bean caterpillar, it is said that the red-winged blackbird is the most important predatory enemy. Other birds feeding upon the pest are the mockingbird and field sparrow.²— W. L. M.

Annual Report of the National Association of Audubon Societies.—The Annual Report of the Audubon Societies³ is a revelation to those who labored in the cause of wild bird protection twenty or more years ago, before public sentiment was aroused, and we think it is safe to say that the present development of the movement is far beyond their most sanguine expectations.

While the reports of the Secretary and the various special agents, are exceedingly interesting reading and the long list of members and contributors, most encouraging, we think the most significant feature is the series of reports from local societies of which nearly 100 are listed. These show how widespread is the interest in bird protection and what a tremendous hold it has upon the people of the country.

Another point in the development of the work is the apparent passing of the State Audubon Society except where it is well endowed or else purely local in character. Independent local clubs, conducted in accordance with the needs of the local community and working in affiliation with the National Association, seem to be the more natural form of development. While the State Societies did excellent service at the start it is impossible now to meet the demands made upon them without independent endowment, and the local organizations seem to turn naturally to the National Association as the central or affiliating body. The number and size of the units engaged in the work however are simply matters of organization, the objects attained are the same in any case.

In the introduction to his report Secretary Pearson calls attention to a very significant feature in the development of bird protection; that is the growing tendency of sportsmen's organizations to take up the cause of the non-game birds. These societies were established originally for the protection of game birds for food and for recreational shooting, and this extension of their activities is a recognition of the broader principle of the

¹ Chittenden, F. H. The common cabbage worm. *Farmers' Bull.* 766, Nov., 1916, p. 9.

² Watson, J. R. Life-history of the velvet-bean caterpillar (*Anticarsia gemmatilis* Hübner), *Journ. Ec. Ent.* 9, No. 6, Dec., 1916, pp. 526-7.

³ Annual Report of the National Association of Audubon Societies, *Bird-Lore*, January, 1917.

protection of wild life for its economic value to our trees, flowers and crops — and necessarily to man himself.

This report should be read through by every one interested in wild bird life and every reader will we feel sure join with us in congratulating the National Association and its officers upon the completion of a most successful year's work.— W. S.

Lloyd-Jones on Feather Pigments.¹— This investigation while carried on primarily in connection with the study of color-inheritance in Pigeons, has an important bearing upon the general subject of coloration in birds. The author finds that there are only two pigments in domestic Pigeons, a red-brown, which produces the red and yellow colors, and a black, which under different conditions produces black, dun, blue and silver. In typical "red" birds the pigment granules are about 0.3 m. in diameter; in 'plum colored' individuals they are 2.0 m. or more, while in yellows they are so minute that their granular structure cannot be determined. Blue as in all birds is a structural color but just what physical peculiarities of the feather produce it has not yet been determined. An interesting point in the author's paper is that he finds that the black pigment may exist either in spheres or in rods so that genetically speaking we may have two different blacks which to the eye appear absolutely identical. Mr. Lloyd-Jones is to be congratulated upon a piece of careful work in a field which offers opportunities for many important investigations.— W. S.

Grinnell on Distributional Control.²— Dr. Grinnell's object in this interesting paper is to demonstrate that data secured through field observation can be so employed as to bring results essentially similar to, and just as conclusive as, those secured through laboratory experimentation, in determining the factors which govern the delimitation of animal habitats.

The cases of several species of bird and mammals are considered in detail and the possible effect of various environmental factors is carefully weighed.

Dr. Grinnell finds that in the majority of cases which he has studied, temperature looms up as the most frequent delimiter of distribution, but he argues that this fact is in no way antagonistic to the claim that other factors such as humidity, food-supply and shelter also figure critically. The paper is suggestive and gives one a deeper insight into the complications of a problem that we are perhaps too much inclined to regard as entirely solved.— W. S.

Recent Publications of the U. S. Biological Survey.— Three bulletins have recently been issued by the U. S. Biological Survey. One of

¹ A Microscopical and Chemical Study of Feather Pigments. By Orren Lloyd-Jones. *Jour. Exper. Zool.*, Vol. 18, No. 3, April, 1915, pp. 453-495, pll. 1-7.

² Field Tests of Theories Concerning Distributional Control. By Joseph Grinnell. *American Naturalist*, LI, pp. 115-128, February, 1917.

these¹ consists of popular economic accounts of twenty-three of the most common birds of the southeastern states with especial emphasis on those species which destroy the cotton boll weevil. Another² tells how to attract birds in the northwestern states. It is a reprint of similar bulletins for other sections of the country with a different list of fruit trees and shrubs.

Still another³ deals with the care and breeding of Canaries and seems rather outside of the regular activities of the Department though if it tends to do away with the caging of native birds where this is still permitted by law it will serve a good purpose.—W. S.

The Ornithological Journals.

Bird-Lore. XVIII, No. 6. November–December, 1916.

Winter Bird Photography. By C. F. Stone.

Dick, the Sandhill Crane. By Florence M. Bailey.

Observations on Woodpeckers. By W. O. Doolittle.

A House Wren Record. By Hubert Prescott.—Tabulation of food.

A colored plate by Fuertes, illustrates several species of Wrens, while the Educational Leaflet treats of the Black-necked Stilt.

The Annual Report of the National Association of Audubon Societies, makes up the bulk of the number (see p. 231).

Bird-Lore. XIX, No. 1. January–February, 1917.

Birds in the War-Zone. By Major Allan Brooks.

A Condor's Quill. By F. M. Chapman.—Trapping the birds in the Andes.

An Effective Feeding Device. By J. C. Lee.

The colored plate illustrates the Thrashers and the Educational Leaflet covers the English Sparrow.

The usual Christmas Bird Census is issued in this number.

The Condor. XVIII, No. 6. November–December, 1916.

Some Results of a Winter's Observations in Arizona. By A. B. Howell.

Meeting Spring Half Way. By Florence M. Bailey.

Nesting of the Leconte Thrasher. By J. R. Pemberton.

The San Domingo Grebe in Bexar County, Texas. By R. W. Quillin and R. Holleman.

More Summer Birds for San Francisco County. By M. S. Ray.—Fifty-six species added to his previous list.

¹ Common Birds of the Southeastern United States in Relation to Agriculture. By F. E. L. Beal, W. L. McAtee, and E. R. Kalmbach. *Farmers' Bulletin*, 755. October 26, 1916.

² How to Attract Birds in the Northeastern United States. By W. L. McAtee. *Farmers' Bulletin*, 760. October 16, 1916.

³ Canaries: Their Care and Management. By Alexander Wetmore. *Farmers' Bulletin*, 770. December, 1916.

The Condor. XIX, No. 1. January-February, 1917.

Further Notes on the White-throated Swifts of Slover Mountain. By W. C. Hanna.

Birds of the Humid Coast. By Florence M. Bailey.

The Townsend Solitaire. By F. S. Hanford.

Further Notes on the Birds of Forrester Island, Alaska. By George Willett.

The subspecies of *Hesperiphona vespertina*. By J. Grinnell. (see p. 225).

The Oölogist. XXXIII, No. 12. December 15, 1916.

Northern Ravens in Nova Scotia. By R. W. Tufts. Account of nesting.

Nesting Birds of Copan, Washington Co., Okla. By Albert J. Kern.— 77 species.

The Cactus Wren. By D. I. Shepardson. Habits etc. at Los Angeles, Cal.

Some Nesting Birds of the Judith Basin, Montana. By P. M. Sillo-way.— Nesting of the Magpie and Desert Horned Lark.

The Wilson Bulletin. XXVIII, No. 4. December, 1916.

The Mating and Nesting Habits of *Fregata aquila*. By Homer R. Dill.— On Laysan Island.

Birds by the Wayside — In Greece. By Althea R. Sherman.

The Albatross of Laysan. By Homer R. Dill.— Numerous illustrations from photographs.

The Cedar Waxwing (*Bombycilla cedrorum*) During July and August, 1916. By Katharine C. Post.— A valuable intensive study of the nest-building, nestlings and food habits of the species.

Blue-Bird. VIII, No. 10. IX, Nos. 1 and 2. November to January, 1917.

Miss Cordelia J. Stanwood has several interesting biographies; the Alder Flycatcher and Olive-backed Thrush in November issue; Redstart in December.

The Ibis. X Series, V, No. 1. January, 1917.

Notes on Birds Observed at Erzerum. By P. J. C. McGregor.

Notes on Birds observed in the North Sea and North Atlantic Ocean during the Autumn and Winter of 1914. By Lieut. J. N. Kennedy.

A little-known Bird Colony in the Gulf of Mexico. By Lieut. J. N. Kennedy.— Alacran Reefs, ninety miles north of Yucatan.

With the British Association in Australia. By A. H. Evans.— A delightful account of the trip describing the native birds as a visitor with limited time is able to see them. Mr. Evans actually made the acquaintance of nearly one third of the 395 species credited to Victoria, and has given us a most satisfactory picture of Australian bird-life.

On the Breeding of the South African Black Duck (*Anas sparsa*). By F. E. Blaauw.

Remarks on Some Recent Collections of Birds made by Mr. G. L. Bates in Camaroon. By W. R. Ogilvie-Grant.— Notes on a number of species and

descriptions of the following new forms: *Apalis jacksoni minor* (p. 76) Bitye, River Ja., *Apalis ansorgei* (p. 77) N'Dalla Tando, N. Angola; *Bradypterus grandis* (p. 78) Bitye, River Ja.

Dr. John C. Phillips has an interesting letter on the Steamer Duck embodying some of the observations on this species made by Mr. W. S. Brooks on his recent expedition to the Falkland Islands.

Bulletin of the British Ornithologists' Club. CCXX, January 2, 1917.

Rothschild and Hartert review the races of *Lalage karu* recognizing six forms of which *L. k. obscurior* (p. 16), Fergusson Isl.; *L. k. keyensis* (p. 17) Little Key Isl. and *L. k. pallescens* (p. 17) Sudest Isl., are described as new. Lord Rothschild further discusses Mr. Mathews' races of owls of the genus *Tyto*.

British Birds. X, No. 7. December, 1916.

British Birds Marking Scheme—Progress for 1916. By H. F. Witherby.

A summary shows that up to the beginning of 1916 48,950 birds had been banded, of which 1903 had been recovered.

Notes on the Breeding-Habits of Temminck's Stint. By Maud D. Haviland.—Illustrated from photographs.

British Birds. X, No. 8. January, 1917. Notes on the Breeding Habits of the Red-backed Shrike. By J. H. Owen.

Supposed Breeding of the Barnacle Goose in Iceland. By H. Noble.

Avicultural Magazine. VIII, No. 1. November, 1916.

Breeding of the Little Bustard. By W. H. St. Quintin.

Avicultural Magazine. VIII, No. I. December, 1916.

Notes on a few American Warblers. By Lady William Cecil.

South Australian Ornithologist. III, Part I. January, 1917.

Field Notes on *Acanthornis magnus* (Gld.) Scrub Tit. By E. Ashby.

Revue Française d'Ornithologie. VIII, No. 93. January, 1917.

Possible Utilization of the Kerguelen Islands as a National Park for the Conservation of Antarctic Animals. By A. Menegaux.

List of Birds Collected or Observed on the Ivory Coast (Guinea). By Drs. Bonet and Millet-Horsin.—Concluded.

Message Ornithologique. VII, No. 4, 1916. 9 (In Russian).

Subspecies and Natio. By P. P. Sushkin.—A plea for the adoption of quadrinomial names, the fourth term to indicate, as it were, a subspecies of a subspecies, since in many cases subspecies are not of equal value.

On the Birds of the Far East. By S. A. Buturlin.—*Cetrastes bonasia ussuriensis* (p. 222); *T. b. kolymensis* (p. 226); *T. b. amurensis* (p. 226); and *T. b. volgensis* (p. 227), subsp. nov.

Preliminary List of Birds Observed in Sochi District of the Black Sea Government. By Alex. Koudashev.

Observations on the Rare and Little-known Birds of the Government of Moscow. By A. M. Kaminsky.

Ornithological Articles in Other Journals.¹

Pearson, T. Gilbert. How the Birds Get through the Winter. (The New Country Life, February, 1917.)

Stanwood, C. J. The House Beautiful. (The House Beautiful, February, 1917.) — Red-eyed Vireo's Nest.

Chapin, J. P. Migration of Birds in Africa. (American Museum Journal, December, 1916.) — A valuable paper, giving probably the first definite knowledge of migration among tropical African birds, with interesting data on the arrival of European species in the Autumn.

S(ass), H. R. Bird Life in Charleston. (Bull. of the Charleston Museum. December, 1916.)

North, A. J. The Birds of Coolabah and Brewarrina, North-western New South Wales. (Records of the Australian Museum, XI, No. 6.) — An annotated list with illustrations of the country.

"K. P. & E. W. V." Bird Lovers in Prospect Park. (Brooklyn Museum Quarterly. July, 1916.)

McClintock, N. The Telephoto Lens in Cinematography with Special Reference to its Application in the Problems of Bird Photography. (American Museum Journal, January, 1917.)

Craig, W. Synchronism in the Rhythmic Activities of Animals. (Science, Dec. 1, 1916.) — Comment on paper in 'The Auk' by Prof. W. B. Barrows, April, 1913, p. 187.

Taverner, P. A. The Faunas of Canada. (Canada Year Book, 1915.) — A review of the Faunal areas of Canada with lists of the characteristic mammals and birds of each.

Wetmore, Alexander. A New Cuckoo from New Zealand. (Proc. Biol. Soc. Wash., Vol. 30, pp. 1-2, January 22, 1917.) — *Urodynamis taiitensis pheletes*, Otago Province.

Oberholser, H. C. Description of a New *Sialia* from Mexico. (Proc. Biol. Soc. Wash., Vol. 30, pp. 27-28, February 21, 1917.) — *Sialia sialis episcopus*, Santa Engracia, Tamaulipas.

Baker, E. C. Stuart. The Game Birds of India, Burma and Ceylon (continued). (Jour. Bombay Nat. Hist. Soc., XXIV, No. 4, October 25, 1916.) — Colored plate of *Crossoptilon harmani*.

Whistler, Hugh. Notes on Some Birds of the Gujranwala District, Punjab. (Jour. Bombay Nat. Hist. Soc., XXIV, No. 4, October 25, 1916.)

Wait, W. E. Notes on Ceylon Rails, Waders, Gulls and Terns. (Spolia Zeylanica, X, Part 38, November, 1916.) — An instalment of a proposed 'Handbook' of Ceylon birds.

Publications Received.—**Allen, J. A.** Autobiographical Notes and a Bibliography of the Scientific Publications of Joel Asaph Allen. Pub-

¹ Some of these journals are received in exchange, others are examined in the library of the Academy of Natural Sciences of Philadelphia. The Editor is under obligations to Mr. J. A. G. Rehn for a list of ornithological articles contained in the accessions to the library from week to week.

lished by the Amer. Mus. of Nat. Hist., New York, 1916, pp. i-xi, 1-215. Frontispiece portrait.

Brooks, Earle A. The Game Birds of West Virginia. Fourth Biennial Report of the Forest, Fish and Game Warden 1915-1916, pp. 93-160. July 1, 1916.

Cory, Charles B. Notes on Little Known Species of South American Birds with Descriptions of New Subspecies. Field Museum of Nat. Hist. Publ. 193. Zool. Series, Vol. XII, No. 1, pp. 3-7. January 25, 1917.

Evans, A. H. The Birds of Britain. Their Distribution and Habits. Cambridge: University Press. 1916. Small 8vo., pp. 1-275. Price \$1.25. G. W. Putnam's Sons, New York.

Forbush, E. H. (1) Ninth Annual Report of the State Ornithologist of Massachusetts. (2) The Natural Enemies of Birds. Bull. No. 3, Mass. State Board of Agriculture. December 6, 1916. (3) The Domestic Cat. Econom. Biology, Bull. No. 2, Mass. State Board of Agriculture.

Fuertes, L. A. The Larger North American Mammals. From Drawings by L. A. Fuertes, Text and Descriptions by E. W. Nelson. (Nat. Geogr. Mag., November, 1916.)

Grinnell, J. (1) The Subspecies of *Hesperiphona vespertina*. (The Condor, January, 1917, pp. 17-22.) (2) Field Tests Concerning Distributional Control. (Amer. Nat., 1917, Feb., pp. 11-128).

Henshaw, H. W. Report of the Chief of the Biological Survey, pp. 1-16, 1916.

Lloyd-Jones, Orren. Studies on Inheritance in Pigeons. II. A Microscopical and Chemical Study of the Feather Pigments. (Jour. Exper. Zool., Vol. 18, No. 3, April, 1915.)

Beal, F. E. L., McAtee, W. L., and Kalmbach, E. R. Common Birds of the Southeastern United States in Relation to Agriculture. Farmers' Bulletin, 755, U. S. Dept. of Agriculture. October 26, 1916.

McAtee, W. L. How to Attract Birds in Northwestern United States. Farmers' Bulletin 760. U. S. Dept. of Agriculture. October 16, 1916.

Mathews, G. M. The Birds of Australia. Vol. VI, Part I. November 22, 1916.

Mullens, W. H. and Swann, H. Kirke. A Bibliography of British Ornithology from the earliest Times to the End of 1912. Parts III-V.

Oberholser, H. C. The Birds of Bawean Island, Java Sea. Proc. U. S. Nat. Mus., Vol. 52, pp. 183-198. February 8, 1917.

Pearson, T. Gilbert. How the Birds get through the Winter. (The New Country Life.) February, 1917.

Stanwood, Cordelia J. The White-throated Sparrow, Songster. (The New Country Life, March, 1917.) (2) The House Beautiful. (The House Beautiful, February, 1917.)

Thorburn, A. British Birds. Vols. III and IV, 1916. Longmans, Green and Co., London and New York. Price, \$10.00 per volume.

Taverner, P. A. Faunas of Canada. Reprint, repaged, from the Canada Year Book, 1915. Ottawa, 1916.

Wetmore, Alexander. (1) Canaries: Their Care and Management. Farmers' Bulletin No. 770, U. S. Dept. of Agriculture, December, 1916. (2) On certain Secondary Sexual Characters in the Male Ruddy Duck, *Erismatura jamaicensis* (Gmelin). Proc. U. S. Nat. Mus., Vol. 52, pp. 479-482, February 8, 1917.

American Museum Journal, The, XVI, No. 8, December, 1916, and XVII, No. 1, January, 1917.

Ardea, V, No. 3-4, December, 1916.

Avicultural Magazine, (3) VIII, Nos. 2 and 3, December, 1916 and January, 1917.

Bird-Lore, XVIII, No. 6, November-December, 1916, and XIX, No. 1, January-February, 1917.

Bird Notes and News, Vol. VII, No. 4.

Blue-Bird, The, VIII, No. 10, and IX, Nos. 1 and 2, November, 1916-January, 1917.

British Birds, X, Nos. 7 and 8, December, 1916 and January, 1917.

Brooklyn Museum Quarterly, III, No. 3, July, 1916.

Bulletin British Ornithologists' Club, CCXIX and CCXX, November 27, 1916, and January 2, 1917.

Bulletin of the Charleston Museum, XII, No. 8, December, 1916 and XIII, No. 1, January, 1917.

Condor, The, XVIII, No. 6, November-December, 1916 and XIX, No. 1, January-February, 1917.

Current Items of interest, No. 30, December 8, 1916.

Forest and Stream, LXXXVI, No. 12, December, 1916, and LXXXVII, Nos. 1-3, January-March, 1917.

Ibis, The, (10) V, No. 1, January, 1917.

Messenger Ornithologique, VII, No. 4, 1916.

New Jersey Audubon Bulletin, No. 17, January 1, 1917 and No. 18, March 1, 1917.

Oölogist, The, XXXIII, No. 12, and XXXIV, Nos. 1, 2, and 3, December, January, February, and March, 1917.

Ornithologische Monatsschifte, 1914, No. 12, 1915, Nos. 3 and 4.

Ottawa Naturalist, XXX, No. 8, November, 1916.

Philippine Journal of Science, XI, Sec. D, No. 5, September, 1916.

Proceedings of the Academy of Natural Sciences of Philadelphia, LXVIII, Pt. III, May-December, 1916.

Records of the Australian Museum, Vol. XI, Nos. 5 and 6.

Revue Française d'Ornithologie, VIII, Nos. 92 and 93, December, 1916 and January, 1917.

Science, N. S., XLIV and XLV, Nos. 1147 to 1159.

Scottish Naturalist, The, Nos. 60 and 61, December, 1916 and January, 1917.

South Australian Ornithologist, The, III, Part 1, January, 1917.

Wilson, Bulletin, The, XXVIII, No. 4, December, 1916.

Zoologist, The, XX, Nos. 239 and 240, November and December, 1916.

CORRESPONDENCE.

Description of Audubon.

EDITOR OF 'THE AUK'

Dear Sir:—

Recently when examining a file of the 'Sentinel & Witness,' a weekly newspaper published in Middletown, Conn., now discontinued, I found in the issue for September 6, 1843, the following letter, copied from the 'Buffalo Courier.' I do not recall seeing elsewhere such a vivid description of Audubon.

"Messrs. Editors: Mr. Weed, in one of his recent letters from London, quoting Mr. Audubon, our great ornithologist and naturalist, as one of the American authors, says: "he is not sure that Mr. Audubon is an American." Should the remark catch the eye of the great 'trapper' nothing would give him more displeasure than to be even suspected of being an European. Mr. Audubon was born in New Orleans, is now sixty years of age and resides in New York City about nine miles up town. The writer had the pleasure of a personal interview with him at St. Louis, in April last, and learned these facts from his own lips.

"Mr. Audubon is a man about the middle statute; his hair is white with age, and somewhat thin; he combs it back from an ample forehead, his face being sharp at the chin; has grey whiskers, an aquiline nose, and a hazle eye, small, keen and indicative of great tranquility, and sweetness of temper, cheerfulness and genius. He is a man of robust constitution though not of a stout frame. He told me he had not taken a particle of medicine for twenty years. He is capable of any fatigue; can walk thirty-five miles a day with ease, for months; can sleep any-where in the open air; endure all climates; his principal food being soaked sea biscuit and molasses. He cannot well masticate meat on account of having lost his teeth, from which he suffers, and is obliged to boil his meat to rags.

"He wore a dark frock coat, velvet vest and blue hunting shirt; is very pleasing and agreeable in conversation, and makes one perfectly at ease in his presence. He says a man can live one hundred years with temperate habits, regularity, and attention to diet.

"He was about starting up the Missouri — said he was entirely done with ornithology; his object now being to classify the American quadrupeds. He was severe on Buffon, whose book he regarded of no authority; said Buffon was a man of wealth, resided in Paris, and wrote his descriptions from dried skins, and drew largely upon his fancy. Mr. Audubon anticipated a good deal of pleasure, and much hard trapping, shooting,

drawing and writing. He takes all his drafts from the animal as soon after it is taken as circumstances will admit."

The Secretary of the Buffalo Historical Society writes me that the letter above referred to was published in the 'Buffalo Courier,' August 22, 1843. No signature was attached.

Sincerely yours,

JNO. H. SAGE.

Portland, Conn., Feb. 12, 1917.

Concealing Coloration.

EDITOR OF 'THE AUK'

Dear Sir:—

In our book on Concealing Coloration the Schillings flashlit zebra photographs were included solely to show what kind of background zebras have at their drinking places.

Flash-light, illuminating so disproportionately the nearest objects (the zebras) could not, of course, illustrate these patterns' normal function.

Our omission to state this beneath the pictures was an oversight.

To every owner of our book whom I can reach, I am now sending, gratis, for substitution for one of the Schillings pictures, a copy of the very remarkable zebra-concealment illustration that I published in the bulletin of The Am. Museum of Nat. History.

I beg every owner of our book, who lacks this picture, to ask me for one.

Respectfully,

ABBOTT H. THAYER.

Monadnock, N. H., March 6, 1917.

NOTES AND NEWS.

SAMUEL WRIGHT, an Associate of the American Ornithologists' Union since 1895, died at Yonkers, N. Y., on January 18, 1917. Mr. Wright was born June 25, 1875, at Conshohocken, Pa., where his entire life was spent until about a year ago when business interests compelled him to move temporarily to New York. He was the son of William Wright and Frances Cresson, and was educated at the Friends' boarding school at Westtown, Chester Co., Pa. After graduation he held one of the Jessup scholarships at the Academy of Natural Sciences of Philadelphia, where he rendered valuable service in the ornithological department and delighted in the

opportunity to devote himself to a study in which from early youth he had been deeply interested. He joined the Delaware Valley Ornithological Club soon after its organization and later became one of its active members and served as treasurer 1908-1911. In these years he formed a good local collection of birds and acquired an accurate knowledge of our native species and an experience in field observation which made him an ornithologist of no little ability.

Leaving the Academy in 1892 to enter business he became connected with the J. Ellwood Lee Chemical Company of Conshohocken of which he was assistant secretary for many years. In 1911 the Lee Tire and Rubber Company was organized and Mr. Wright became its secretary, a position which he held until he removed to New York in 1916, becoming associated with the Philadelphia Rubber Work Company and general manager and treasurer of the Acushnet Process Company. He was untiring in his devotion to business and his abilities contributed largely to the success of the interests with which he was connected. In spite of the continual pressure of business obligations he never lost his interest in birds and his greatest pleasure was to get out in the open, either in the vicinity of his home, where his early studies had been conducted, or on the tract that he had secured in the Adirondacks.

He was devoted to the American Ornithologists' Union and attended the annual meetings whenever possible. In company with Mrs. Wright he joined the 'overland' party which attended the San Francisco meeting in 1915, and with keen delight made the acquaintance in life of many of the western birds which he had previously known only as museum specimens.

Mr. Wright had a delightful personality; cheerful under any conditions and kindly disposed toward everyone with whom he came in contact.

He was married in 1910 to Miss Louise Weston who with two daughters survives him.—W. S.

MRS. KATHARINE REBECCA STYER, an Associate of the American Ornithologists' Union for fourteen years, died of pneumonia on January 20, 1917, at her residence in Concordville, Pa. She was born November 1, 1859, at Chester Heights, Pa., the daughter of Henry Lincoln Paschall and Anna Thompson Pancoast, and was married in 1880 to Mr. J. J. Styer. Soon after her marriage she took up the study of birds, and with no assistance but such as she could obtain from some of the older ornithological books, she acquired a remarkably thorough knowledge of the local avifauna and since 1902 has been one of the most reliable members of the Delaware Valley Ornithological Club's migration corps. She was also deeply interested in the work of the Pennsylvania Audubon Society and did much to encourage the study of ornithology among boys and girls of her acquaintance.

Mrs. Styer's interest in birds was far above that of the average bird lover, she was all that this term implies and a good ornithologist besides.—W. S.

THE Annual Meeting of the Delaware Valley Ornithological Club was held on January 4, 1917, at the Academy of Natural Sciences, Philadelphia. The election of officers for the present year resulted in the choice of Henry W. Fowler, president; George H. Stuart 3rd, vice-president; J. Fletcher Street, secretary; Dr. Samuel C. Palmer, treasurer and Dr. Spencer Trotter, editor of 'Cassinia.' The Club held fifteen meetings during 1916, which were well attended, as were the field trips conducted during the spring.

THOSE who have on so many occasions derived pleasure from the bird portraits that have appeared from the brush of Mr. Louis Agassiz Fierres have now the additional pleasure of seeing what he has been able to do with the larger mammals of North America.

Fifty of his paintings have been reproduced in colors in the 'National Geographic Magazine' for November, 1916, with text by Mr. E. W. Nelson, chief of the U. S. Biological Survey. Mr. Fierres' success with the mammals is quite as striking as with the birds and we are glad to learn that a series of the smaller species is to follow. The 'National Geographic Magazine' has again done a splendid piece of educational work in making this series of pictures available to the public at large.

WORK in ornithology will be offered again this coming summer at the University of Michigan summer biological station in northern Michigan, under the direction of Professor R. M. Strong. There will be a general course devoted to identification work, primarily, and research for properly qualified students. The station is located in wild country where a number of northern species breed. Further information may be obtained from Dr. George R. La Rue, University of Michigan, Ann Arbor, Michigan.

THE well known and old established natural history monthly, 'The Zoologist,' having been acquired by Messrs. Witherby & Co., will in future be incorporated with the illustrated monthly magazine, 'British Birds', published by the same firm at 326, High Holborn, London, England.

MESSRS. WITHERBY & Co., have been appointed European Agents for the "Journal of the Natural History Society of Siam." The work is illustrated with plates and figures, and deals with all branches of the Natural History of that Country.

OFFICERS AND COMMITTEES OF THE AMERICAN ORNITHOLOGISTS' UNION. 1917.

	Expiration of Term.
FISHER, ALBERT K., <i>President</i>	November, 1917.
HENSHAW, HENRY W. } STONE, WITMER..... }	<i>Vice-Presidents</i> " 1917.
SAGE, JOHN H., <i>Secretary</i>	" 1917.
DWIGHT, JONATHAN, <i>Treasurer</i>	" 1917.

ADDITIONAL MEMBERS OF THE COUNCIL.

DEANE, RUTHVEN.....	November, 1917.
DUTCHER, WILLIAM.....	" 1917.
GRINNELL, JOSEPH.....	" 1917.
LUCAS, FREDERIC A.....	" 1917.
OSGOOD, WILFRED H.....	" 1917.
RICHMOND, CHARLES W.....	" 1917.
ROBERTS, THOMAS S.....	" 1917.
ALLEN, J. A.....	} Ex-Presidents.
BATCHELDER, CHARLES F.....	
BREWSTER, WILLIAM.....	
CHAPMAN, FRANK M.....	
CORY, CHARLES B.....	
MERRIAM, C. HART.....	
NELSON, EDWARD W.....	
RIDGWAY, ROBERT.....	

EDITORIAL STAFF OF 'THE AUK.'

STONE, WITMER, <i>Editor</i>	November, 1917.
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COMMITTEES.

Committee on Publications.

FISHER, ALBERT K.	STONE, WITMER.
SAGE, JOHN H., <i>Secretary</i> .	DWIGHT, JONATHAN.

Committee of Arrangements for the Meeting of 1917.

FISHER, ALBERT K., <i>Chairman</i> .	BATCHELDER, CHARLES F.
SAGE, JOHN H., <i>Secretary</i> .	BREWSTER, WILLIAM.
BARBOUR, THOMAS.	

FELLOWS, MEMBERS, AND ASSOCIATES OF THE AMERICAN ORNITHOLOGISTS' UNION.

APRIL, 1917.¹

FELLOWS.

	Date of Election.
ALLEN, Dr. J. A., Amer. Mus. Nat. Hist., New York, N. Y.....	Founder
ANTHONY, A. W., Ironside, Ore.....	(1885)1895 ²
BANGS, OUTRAM, Museum Comp. Zoölogy, Cambridge, Mass....	(1884)1901
BARROWS, Prof. W. B., Box 1047, East Lansing, Mich.....	1883
BATCHELDER, CHARLES F., 7 Kirkland St., Cambridge, Mass....	Founder
BEEBE, C. WILLIAM, New York Zoöl. Park, New York, N. Y....	(1897)1912
BENT, ARTHUR CLEVELAND, Taunton, Mass.....	(1889)1909
BICKNELL, EUGENE P., Box 1698, New York, N. Y.....	Founder
BISHOP, Dr. LOUIS B., 356 Orange St., New Haven, Conn.....	(1885)1901
*BREWSTER, WILLIAM, 145 Brattle St., Cambridge, Mass.....	Founder
BROWN, NATHAN CLIFFORD, 218 Middle St., Portland, Me.....	Founder
CHADBOURNE, Dr. ARTHUR P., Copley Plaza Hotel, Boston, Mass.	(1883)1889
CHAPMAN, Dr. FRANK M., Amer. Mus. Nat. Hist., New York, N. Y.	(1885)1888
*CORY, CHARLES B., Field Museum Nat. Hist., Chicago, Ill.....	Founder
DEANE, RUTHVEN, 112 W. Adams St., Chicago, Ill.....	1883
DUTCHER, WILLIAM, 949 Park Ave., Plainfield, N. J.....	(1883)1886
DWIGHT, Dr. JONATHAN, 134 W. 71st St., New York, N. Y.....	(1883)1886
FISHER, Dr. ALBERT K., Biological Survey, Washington, D. C....	Founder
FISHER, Prof. WALTER KENRICK, 1525 Waverley St., Palo Alto, Cal.	(1899) 1905
FLEMING, JAMES H., 267 Rusholme Road, Toronto, Ontario...	(1893) 1916
FORBUSH, EDWARD H., State House, Boston, Mass.....	(1887)1912
FUERTES, LOUIS A., Cornell Heights, Ithaca, N. Y.....	(1891)1912
GRINNELL, Dr. GEORGE BIRD, 238 E. 15th St., New York, N. Y.....	1883
GRINNELL, JOSEPH, Mus. Vert. Zoöl., Univ. Cal., Berkeley, Cal.	(1894)1901
HENSHAW, HENRY W., The Ontario, Washington, D. C.....	1883
JONES, LYND, Spear Laboratory, Oberlin, Ohio.....	(1888)1905

¹ Members of the Union, and subscribers to 'The Auk' are requested to promptly notify Dr. JONATHAN DWIGHT, Treasurer, 134 W. 71st St., New York City, of any change of address.

² Dates in parentheses indicate dates of joining the Union.

* Life Fellow.

Honorary Fellows.

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- LOOMIS, LEVERETT M., Cal. Acad. Sci., San Francisco, Cal. . . . (1883) 1892
 LUCAS, DR. FREDERIC A., Am. Mus. Nat. Hist., New York, N. Y.
 (1888) 1892
 MAILLIARD, JOSEPH, 1815 Vallejo St., San Francisco, Cal. . . . (1895) 1914
 MCATEE, WALDO LEE, Biological Survey, Washington, D. C. . . (1903) 1914
 MCGREGOR, RICHARD C., Bureau of Science, Manila, P. I. . . . (1889) 1907
 MERRIAM, DR. C. HART, 1919 16th St., N. W., Washington, D. C. Founder
 MILLER, WALDRON DEWITT, 309 E. 7th St., Plainfield, N. J. (1896) 1914
 NEHRLING, H., Gotha, Fla. 1883
 NELSON, E. W., Biological Survey, Washington, D. C. 1883
 OBERHOLSER, HARRY C., Biological Survey, Washington, D. C. (1888) 1902
 OSGOOD, WILFRED H., Field Museum Nat. Hist., Chicago, Ill. (1893) 1905
 PALMER, DR. T. S., 1939 Biltmore St., N. W., Washington, D. C. (1888) 1901
 PALMER, WILLIAM, U. S. National Museum, Washington, D. C. (1888) 1898
 RICHMOND, DR. CHARLES W., U. S. National Museum, Washington,
 D. C. (1888) 1897
 RIDGWAY, PROF. ROBERT, U. S. Nat. Mus., Washington, D. C. . . . Founder
 ROBERTS, DR. THOMAS S., Univ. of Minnesota, Minneapolis, Minn. . . . 1883
 *SAGE, JOHN H., Portland, Conn. 1883
 SAUNDERS, WILLIAM E., 240 Central Ave., London, Ontario. 1883
 SHUFELDT, DR. ROBERT W., 3356 18th St., N. W., Washington, D. C. Founder
 STONE, DR. WITMER, Acad. Nat. Sciences, Philadelphia, Pa. . . . (1885) 1892
 SWARTH, HARRY S., Mus. Vert. Zoology, Berkeley, Cal. (1900) 1916
 TODD, W. E. CLYDE, Carnegie Museum, Pittsburgh, Pa. (1890) 1916
 WIDMANN, OTTO, 5105 Von Versen Ave., St. Louis, Mo. 1884

RETIRED FELLOWS.

- BELDING, LYMAN, Stockton, Cal. (1883) 1911
 LAWRENCE, NEWBOLD T., Lawrence, N. Y. (1883) 1913
 STEJNEGER, DR. LEONHARD, U. S. Nat. Mus., Washington, D. C. (1883) 1911

HONORARY FELLOWS.

- BUTURLIN, SERGIUS ALEXANDROVICH, Wessenberg, Esthonia, Russia
 (1907) 1916
 DUBOIS, DR. ALPHONSE, Museum Natural History, Brussels . . (1884) 1911
 FINSCH, PROF. DR. OTTO, Leonhardplatz 5, Braunschweig, Germany . . . 1883
 FÜRBRINGER, PROF. DR. MAX, University of Heidelberg, Heidelberg,
 Germany (1891) 1916

* Life Fellow.

GADOW, Dr. HANS FRIEDRICH, Cambridge, England.....	(1884) 1916
GODMAN, FREDERICK DUCANE, 45 Pont St., London, S. W.....	1883
HARTERT, ERNST, Zoological Museum, Tring, England.....	(1891) 1902
HELLMAYR, Dr. CARL E., Neuhauserstrasse 51.II, Munich, Germany	(1903) 1911
IHERING, Dr. HERMANN VON, Rua Consello, São Paulo, Brazil.....	(1902) 1911
PYCRAFT, WILLIAM PLANE, British Museum (Nat. Hist.) Cromwell Road, London, S. W.....	(1902) 1911
REICHENOW, Dr. ANTON, Königl. Mus. für Naturkunde, Invaliden- strasse, 43, Berlin.....	(1884) 1891
ROTHSCHILD, Lord LIONEL WALTER, Zoological Museum, Tring, Eng- land.....	(1898) 1913
SALVADORI, Count TOMMASO, Royal Zoöl. Museum, Turin, Italy.....	1883
SCHALOW, Prof. HERMAN, Hohenzollerndamm 50, Berlin-Grünewald, Germany.....	(1884) 1911

CORRESPONDING FELLOWS.

ABBOTT, Dr. WILLIAM L., Aldine Hotel, Philadelphia, Pa.....	1916
ALFARO, ANASTASIO, San José, Costa Rica.....	1888
ALPHÉRAKY, SERGIUS N., Imperial Acad. Sci., Petrograd, Russia....	1913
ARRIGONI DEGLI ODDI, Count ETTORE, Univ. of Padua, Padua, Italy.....	1900
BANNERMAN, DAVID ARMITAGE, 11 Washington House, Basil St., Lon- don, England.....	1916
BIANCHI, Dr. VALENTINE, Imperial Zool. Museum, Petrograd, Russia.....	1919
BONHOTE, JOHN LEWIS, Gade Spring Lodge, Hemel Hempstead, Herts, England.....	1911
BUREAU, Dr. LOUIS, École de Médecine, Nantes, France.....	1884
BÜTTIKOFER, Dr. JOHANNES, Zoological Garden, Rotterdam, Holland.....	1886
CAMPBELL, ARCHIBALD JAMES, Custom House, Melbourne, Australia.....	1902
CARRIKER, M. A., Jr., Apartado 51, Santa Marta, Colombia....	(1907) 1912
CHAMBERLAIN, MONTAGUE, Cambridge, Mass.....	(Founder) 1901
CHUBB, CHARLES, British Museum (Nat. Hist.) Cromwell Road, Lon- don, S. W.....	1911
CLARKE, WILLIAM EAGLE, Royal Scottish Museum, Edinburgh.....	1889
DABBENE, Dr. ROBERTO, Buenos Aires, Argentina.....	1916
DALGLEISH, JOHN J., Brankston Grange, Bogside Station, Alloa, Scotland.....	1883
DOLE, SANFORD B., Honolulu, Hawaiian Islands.....	1883
ECHT, ADOLPH BACHOFEN VON, Nussdorf, near Vienna.....	1883
EVANS, ARTHUR HUMBLE, 9 Harvey Road, Cambridge, England.....	1899
FEILDEN, Col. HENRY WEMYSS, Burwash, England.....	1884
FERRARI-PEREZ, Prof. FERNANDO, Tacubaya, D. F., Mexico.....	1885
FREKE, PERCY EVANS, Southpoint, Limes Road, Folkstone, England.....	1883

GIRTANNER, Dr. A., St. Galle, Switzerland.....	1884
GODWIN-AUSTEN, Lieut.-Col. HENRY HAVERSHAM, Nore, Hascombe, Godalming, Surrey, England.....	1884
GOELDI, Prof. Dr. EMIL A., Zieglerstrasse 36, Bern, Switzerland.....	1903
GRANDIDIER, ALFRED, 6 Rond-Point des Champs Elysées, Paris.....	1883
GURNEY, JOHN HENRY, Keswick Hall, Norwich, England.....	1883
HAAGNER, ALWYN KARL, Pretoria, Transvaal.....	1916
HALL, ROBERT, Rest Harrow, Hobart, Tasmania.....	1916
HARTING, JAMES EDMUND, Edgewood, Weybridge, Surrey, England..	1883
HENNICKE, Dr. CARL R., Gera, Reuss, Germany.....	1907
HENSON, HARRY V., Yokohama, Japan.....	1888
HUDSON, WILLIAM HENRY, Tower House, St. Luke's Road, West- bourne Park, London, W.....	1895
KRÜPER, Dr. THEOBALD J., University Museum, Athens, Greece....	1884
LEGGE, Col. WILLIAM V., Cullenswood House, St. Mary's, Tasmania..	1891
LE SOUËF, DUDLEY, Zoölogical Gardens, Melbourne, Australia.....	1911
LÖNNBERG, Dr. EINAR, Zoological Museum, Stockholm, Sweden....	1916
LOWE, Dr. PERCY R., The Hatch, Windsor, England.....	1916
MACFARLANE, RODERICK, Winnipeg, Manitoba.....	1886
MADARÁSZ, Dr. JULIUS VON, National Museum, Budapest, Hungary..	1884
MATHEWS, GREGORY M., Langley Mount, Watford, Herts, England..	1911
MÉNÉGAUX, Dr. AUGUSTE, Paris, France.....	1916
MENZIER, Prof. Dr. MICHAEL, Imperial Society of Naturalists, Moscow, Russia.....	1884
MILLAIS, JOHN GUILLE, Compton's Brow, Horsham, England.....	1911
NAMIYE, M., Tokio, Japan.....	1886
NICHOLSON, FRANCIS, The Knoll, Windermere, Westmoreland, Eng- land.....	1884
NORTH, ALFRED J., Australian Museum, Sydney, New South Wales..	1902
OGILVIE-GRANT, WILLIAM ROBERT, British Museum (Nat. Hist.), Cromwell Road, London, S. W.....	1899
PALMÉN, Dr. J. T., Helsingfors, Finland.....	1883
RAMSEY, E. P., Sydney, New South Wales.....	1884
RINGER, FREDERIC, Nagasaki, Japan.....	1888
SCLATER, WILLIAM LUTLEY, 10 Sloane Court, Chelsea, London, S. W..	1906
SNETHLAGE, Dr. EMILIA, Museu Goeldi, Pará, Brazil.....	1915
SUSHKIN, Dr. PETER, University, Kharkov, Russia.....	1903
THEEL, Dr. HJALMAR, University of Upsala, Upsala, Sweden.....	1884
TSCHUSI ZU SCHMIDHOFFEN, VICTOR, RITTER VON, Villa Tännenhof, bei Hallein, Salzburg, Austria.....	1884
VAN OORT, EDWARD DANIEL, Museum Nat. Hist., Leyden, Holland..	1913
WATERHOUSE, F. H., 3 Hanover Square, London, W.....	1889
WINGE, Dr. HERLUF, Univ. Zoölogical Museum, Copenhagen, Den- mark.....	1903
WITHERBY, HARRY FORBES, 3 Cannon Place, Hampstead, England..	1916
WORCESTER, Prof. DEAN C., Manila, P.I.....	1903
ZELEDON, Don JOSÉ C., San José, Costa Rica.....	1884

MEMBERS.

- ALLEN, ARTHUR A., McGraw Hall, Cornell University, Ithaca, N. Y.
(1909)1914
- ALLEN, FRANCIS H., 4 Park St., Boston, Mass. (1888)1901
- ALLEN, DR. GLOVER M., 234 Berkeley St., Boston, Mass. (1896)1904
- ANDERSON, DR. RUDOLPH M., Museum of Geological Survey, Ottawa,
Canada. (1907) 1914
- ATTWATER, H. P., 2120 Genesee St., Houston, Texas. (1891)1901
- BAILEY, VERNON, 1834 Kalorama Ave., Washington, D. C. (1887)1901
- BAILEY, MRS. VERNON, 1834 Kalorama Ave., Washington, D. C. (1885)1901
- BAILY, WILLIAM L., Ardmore, Pa. (1886)1901
- BARBOUR, DR. THOMAS, Mus. Comp. Zoölogy, Cambridge, Mass. (1903)1914
- BARTSCH, PROF. PAUL, U. S. Nat. Museum, Washington, D. C. (1896) 1902
- BERGTOLD, DR. W. H., 1159 Race St., Denver, Colo. (1889)1914
- BOND, FRANK, 3127 Newark St., N. W., Washington, D. C. (1887)1901
- BOWLES, JOHN HOOPER, The Woodstock, Tacoma, Wash. (1891)1910
- BRAISLIN, DR. WILLIAM C., 425 Clinton Ave., Brooklyn, N. Y. (1894) 1902
- BROOKS, ALLAN, Okanagan Landing, B. C. (1902)1909
- BRYAN, WILLIAM ALANSON, College of Hawaii, Honolulu, Hawaiian
Islands. (1898)1901
- BURNS, FRANK L., Berwyn, Pa. (1891)1901
- BUTLER, AMOS W., 52 Downey Ave., Irvington, Indianapolis, Ind. (1885)1901
- CHAMBERS, W. LEE, Eagle Rock, Cal. (1907)1913
- CLARK, AUSTIN HOBART, 1726 18th St., N. W., Washington, D. C. (1899)1905
- CLARK, DR. HUBERT LYMAN, Museum of Comparative Zoölogy, Cam-
bridge, Mass. (1886)1902
- DAGGETT, FRANK S., Museum, Exposition Park, Los Angeles, Cal.
(1889)1901
- DAWSON, WILLIAM LEON, R. D., No. 3, Box 110, Santa Barbara, Cal.
(1895)1905
- DEANE, WALTER, 29 Brewster St., Cambridge, Mass. (1897)1901
- EATON, ELON HOWARD, 678 Main St., Geneva, N. Y. (1895) 1907
- EVERMANN, PROF. BARTON W., Cal. Academy of Sciences, San Fran-
cisco, Cal. (1883)1901
- FINLEY, WILLIAM L., 651 East Madison St., Portland, Ore. (1904)1907
- GAULT, BENJAMIN TRUE, Glen Ellyn, Ill. (1885)1903
- GOLDMAN, EDWARD ALFONSO, Biological Survey, Washington, D. C.
(1897)1902
- HERSEY, F. SEYMOUR, 6 Maple Ave., Taunton, Mass. (1911) 1916
- HOFFMANN, RALPH, 11 W. Concord Ave., Kansas City, Mo. (1893)1901
- HOLLISTER, NED, Nat. Zoölogical Park, Washington, D. C. (1894) 1910
- HOWELL, A. BRAZIER, Covina, Cal. (1909) 1916
- HOWELL, ARTHUR H., 2919 S. Dakota Ave., Washington, D. C. (1889)1902

- JACOBS, J. WARREN, 404 S. Washington St., Waynesburg, Pa. (1889)1904
 JEFFRIES, WILLIAM AUGUSTUS, 11 Pemberton Square, Boston, Mass.
 (1883)1901
 JOB, HERBERT K., 291 Main St., West Haven, Conn. (1896)1901
 JORDAN, Prof. DAVID STARR, Stanford University, Cal. (1885)1901
 KALMBACH, EDWIN R., Biological Survey, Washington, D. C. (1910)1915
 KENNARD, F. H., Dudley Road, Newton Centre, Mass. (1892)1912
 KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C. (1883)1902
 LAW, J. EUGENE, 1834 El Cerrito Place, Hollywood, Cal. (1907) 1916
 MACKAY, GEORGE H., 304 Bay State Road, Boston, Mass. (1890)1901
 MAILLIARD, JOHN W., 230 California St., San Francisco, Cal. (1895)1901
 MILLER, Mrs. OLIVE THORNE, 5928 Hays Ave., Los Angeles, Cal. (1887)1901
 MOORE, ROBERT THOMAS, Haddonfield, N. J. (1898)1914
 MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa. (1887)1903
 MORRIS, ROBERT O., 82 Temple St., Springfield, Mass. (1888)1904
 MURDOCH, JOHN, 16 High Rock Way, Allston, Mass. (1883)1901
 MURPHY, ROBERT C., Museum Brooklyn Institute, Eastern Parkway,
 Brooklyn, N. Y. (1905)1914
 NICHOLS, JOHN TREADWELL, Am. Mus. Nat. Hist., New York, N. Y.
 (1901)1914
 NORTON, ARTHUR H., Museum Natural History, 22 Elm St., Port-
 land, Maine. (1890)1902
 PEARSON, T. GILBERT, 1974 Broadway, New York, N. Y. (1891) 1902
 PHILLIPS, JOHN C., Wenhams, Mass. (1904)1912
 PREBLE, EDWARD A., Biological Survey, Washington, D. C. (1892)1901
 RATHBUN, SAMUEL F., 217 14th Ave., N., Seattle, Wash. (1893)1902
 RHOADS, SAMUEL N., 81 Haddon Ave., Haddonfield, N. J. (1885)1901
 RILEY, JOSEPH H., U. S. National Museum, Washington, D. C. (1897)1905
 RIVES, Dr. WILLIAM C., 1702 Rhode Island Ave., Washington, D. C.
 (1885)1901
 ROBINSON, Col. WIRT, U. S. A., West Point, N. Y. (1897)1901
 SETON, ERNEST THOMPSON, Greenwich, Conn. (1883)1901
 *SHERMAN, Miss ALTHEA R., National via McGregor, Iowa. (1907)1912
 SHIRAS, Hon. GEORGE, 3d, Stoneleigh Court, Washington, D. C. (1907)1915
 STEPHENS, FRANK, Nat. Hist. Museum, Balboa Park, San Diego, Cal.
 (1883) 1901
 STRONG, Dr. REUBEN M., Vanderbilt Medical School, Nashville, Tenn.
 (1889) 1903
 SWALES, BRADSHAW HALL, Mus. of Zoöl., Ann Arbor, Mich. (1902)1909
 TAVERNER, PERCY A., Victoria Memorial Museum, Ottawa, Canada
 (1902)1909
 THAYER, JOHN ELIOT, Lancaster, Mass. (1898)1905
 TOWNSEND, CHARLES H., Aquarium, Battery Park, New York, N. Y.
 (1883)1901

TOWNSEND, Dr. CHARLES WENDELL, 76 Marlborough St., Boston, Mass.....	(1901)1905
TROTTER, Dr. SPENCER, Swarthmore College, Swarthmore, Pa. .	(1888)1901
WARREN, EDWARD ROYAL, 20 West Caramillo St., Colorado Springs, Colo.....	(1902)1910
WAYNE, ARTHUR T., Mt. Pleasant, S. C.....	(1905)1906
WETMORE, ALEX., Biological Survey, Washington, D. C.....	(1908)1912
WILLETT, GEORGE, 2123 Court St., Los Angeles, Cal.....	(1912)1913
WOLCOTT, Dr. ROBERT H., State University, Lincoln, Neb....	(1901)1903
WOOD, NORMAN A., Museum Univ. of Mich., Ann Arbor, Mich..	(1904)1912
WRIGHT, Mrs. MABEL OSGOOD, Fairfield, Conn.....	(1895)1901

ASSOCIATES.

ABBOTT, CLINTON GILBERT, Orchard Hill, Rhinebeck, N. Y.....	1898
ADAMS, BENJAMIN, 476 5th Ave., New York, N. Y.....	1911
ADAMS, WALLACE, U. S. Indian Service, Florence, Ariz.....	1901
ADAMS, Dr. Z. B., 43 Cottage Farm Rd., Brookline, Mass.....	1908
AIKEN, Hon. JOHN, Superior Court, Court House, Boston, Mass....	1905
AIMAR, Dr. CHARLES PONS, 4 Vanderhorst St., Charleston, S. C....	1916
ALEXANDER, Miss ANNIE M., 92 Sea View Ave., Piedmont, Cal....	1911
ALLEN, MARY P., 206 Moore St., Hackettstown, N. J.....	1913
ANDERSON, ERNEST M., Provincial Museum, Victoria, B. C.....	1915
ANDERSON, Mrs. J. C., Great Barrington, Mass.....	1903
ANGELL, WALTER A., 33 Westminster St., Providence, R. I.....	1901
ANTHONY, H. E., Amer. Mus. Nat. Hist., New York, N. Y.....	1911
ARMSTRONG, EDWARD E., 207 N. Michigan Ave., Chicago, Ill.....	1904
ARNOLD, EDWARD, Grand Trunk R'y., Montreal, Quebec.....	1894
ARNOLD, Dr. W. W., 1st Nat. Bank Bldg., Colorado Springs, Colo...	1910
ARTHUR, STANLEY CLISBY, 1109 Henry Clay Ave., New Orleans, La..	1916
ASPINWALL, Mrs. CLARENCE A., 1839 Wyoming Ave., Washington, D. C.....	1916
AVIS, EDWARD, Box 56, Enfield, Conn.....	1908
AYRES, Miss MARY ADELINE, 119 High St., Medford, Mass.....	1915
BABCOCK, DEAN, Estes Park, Colo.....	1911
BABCOCK, Dr. HAROLD LESTER, Woodleigh Road, Dedham, Mass....	1916
BADÉ, Dr. WM. FREDERIC, 323 Marlborough St., Boston, Mass.....	1916
BAGG, AARON C., 70 Fairfield Ave., Holyoke, Mass.....	1916
BAGG, EGBERT, JR., 406 Genesee St., Utica, N. Y.....	1916
BAILEY, Dr. B. H., Coe College, Cedar Rapids, Ia.....	1913
BAILEY, Prof. GUY A., Geneseo, N. Y.....	1910
BAILEY, SAMUEL WALDO, 64 S. Mountain Road, Pittsfield, Mass....	1909

BAKER, JOHN H., Nat. Cash Register Co., Dayton, Ohio.....	1911
BALDWIN, ROGER N., 3739 Windsor Place, St. Louis, Mo.....	1904
BALES, DR. BLENN R., 149 W. Main St., Circleville, Ohio.....	1907
BALKAM, CLIFFORD MANN, Box 228, Colorado Springs, Colo.....	1916
BALL, MRS. BENNET F., Oakville, Conn.....	1905
BALL, DAVID S., Spuyten Duyvil, New York, N. Y.....	1913
BALL, MISS HELEN AUGUSTA, 43 Laurel St., Worcester, Mass.....	1893
BALL, DR. JAS. P., 5001 Frankford Ave., Philadelphia, Pa.....	1911
BANKS, MISS MARTHA B., Westport, Conn.....	1911
BARBOUR, REV. ROBERT, Y. M. C. A., Montclair, N. J.....	1902
BARKER, MRS. MERLE TAFT, 178 High St., Taunton, Mass.....	1915
BARNARD, JUDGE JOB, 1306 Rhode Island Ave., Washington, D. C....	1886
BARNES, CLAUDE T., Walker Bank Bldg., Salt Lake City, Utah....	1908
BARNES, HON. R. MAGOON, Lacon, Ill.....	1889
BARRETT, CHAS. H. M., 1339 Valley Place, S. E., Washington, D. C....	1912
BARRETT, HAROLD LAWRENCE, 704 Centre St., Jamaica Plain, Mass....	1909
BARROWS, IRA, 512 Park Ave., New York, N. Y.....	1916
BARRY, MISS ANNA K., 5 Bowdoin Ave., Dorchester, Mass.....	1907
BARTLETT, MISS MARY F., 227 Commonwealth Ave., Boston, Mass....	1912
BARTLETT, WM. M., Silver Hill Road, South Lincoln, Mass.....	1913
BARTRAM, EDWIN B., Strafford, Pa.....	1913
BATTEN, GEORGE, 381 Fourth Ave., New York, N. Y.....	1911
BATTEN, GEORGE, JR., 93 Union St., Montclair, N. J.....	1914
BAYNES, ERNEST H., Meriden, N. H.....	1912
BECK, ROLLO HOWARD, San José, R. D. 21, Cal.....	1894
BELL, PROF. W. B., Biological Survey, Washington, D. C.....	1912
BEMIS, BENJ. FRANKLIN, Gleasondale, Mass.....	1916
BENNETT, REV. GEO., Iowa City, Ia.....	1913
BENNETT, WILLIAM J., 1941 1st St. N. W., Washington, D. C.....	1901
BENSON, C. STANLEY, 75 Plymouth St., North Abington, Mass.....	1915
BETTS, NORMAN DE WITT, Linwood, Utah.....	1908
BICKNELL, MRS. F. T., 319 S. Normandie Ave., Los Angeles, Cal....	1913
BIDDLE, MISS EMILY WILLIAMS, 122 S. 22nd St., Philadelphia, Pa....	1898
BIGELOW, ALBERT F., 84 State St., Boston, Mass.....	1910
BIGELOW, DR. LYMAN F., 80 Winter St., Norwood, Mass.....	1914
BLACKWELDER, ELIOT, Natural History Bldg., Urbana, Ill.....	1895
BLOOMFIELD, MRS. C. C., 723 Main St., W., Jackson, Mich.....	1901
BOARDMAN, MISS E. D., 416 Marlborough St., Boston, Mass.....	1906
BODINE, MRS. DONALDSON, 4 Mills Place, Crawfordsville, Ind.....	1916
BOGARDUS, MISS CHARLOTTE, Elm St., Coxsackie, N. Y.....	1909
BOGERT, WILLIAM S., 2610 Eldridge St., Bellingham, Wash.....	1904
BOLLES, MRS. FRANK, 6 Berkeley St., Cambridge, Mass.....	1912
BOLT, BENJAMIN FRANKLIN, 1421 Prospect Ave., Kansas City, Mo....	1909
BOND, HARRY L., Lakefield, Minn.....	1908
BORLAND, WM. G., 7 Wall St., New York, N. Y.....	1911
BOSSON, CAMPBELL, 30 State St., Boston, Mass.....	1906

BOULTON, W. RUDYUD, JR., 338 1st St., Beaver, Pa.....	1915
BOURNE, THOS. L., Hamburg, N. Y.....	1914
BOWDISH, B. S., Demarest, N. J.....	1891
BOWDISH, MRS. B. S., Demarest, N. J.....	1902
BOWDITCH, HAROLD, 60 Harvard Ave., Brookline, Mass.....	1900
BOWDITCH, JAMES H., 903 Tremont Bldg., Boston, Mass.....	1913
BOWMAN, DAN H., Drawer D, Mizpah, Mont.....	1916
BOYLE, HOWARTH S., Amer. Mus. Nat. Hist., New York, N. Y.....	1916
BOYNTON, CHARLES T., 1005 S. Sheridan Road, Highland Park, Ill.....	1912
BRACKEN, MRS. HENRY M., 1010 Fourth St., S. E., Minneapolis, Minn.....	1897
BRADBURY, W. C., 1440 Race St., Denver, Colo.....	1915
BRADLEE, THOMAS STEVENSON, Somerset Club, Boston, Mass.....	1902
BRANDRETH, COURTENAY, Ossining, N. Y.....	1905
BRANDRETH, FRANKLIN, Ossining, N. Y.....	1889
BRANDT, HERBERT W., 2025 East 88 St., Cleveland, Ohio.....	1915
BREWSTER, EDWARD EVERETT, 316 East C St., Iron Mountain, Mich.....	1893
BREWSTER, MRS. WILLIAM, 145 Brattle St., Cambridge, Mass.....	1912
BRIDGE, EDMUND, 52 Wyman St., West Medford, Mass.....	1910
BRIDGE, MRS. EDMUND, 52 Wyman St., West Medford, Mass.....	1902
BRIGGS, JOSEPH S., 1372 Powell St., Norristown, Pa.....	1916
BRIMLEY, H. H., Raleigh, N. C.....	1904
BRISTOL, JOHN I. D., 1 Madison Ave., New York, N. Y.....	1907
BRITTEN, G. S., 807 Walnut Ave., Syracuse, N. Y.....	1913
BROCK, DR. HENRY HERBERT, 687 Congress St, Portland, Me.....	1894
BROCKWAY, ARTHUR W., Hadlyme, Conn.....	1912
BROOKS, REV. EARLE AMOS, 419 N. River Ave., Weston, W. Va.....	1892
BROOKS, W. SPRAGUE, 234 Berkeley St., Boston, Mass.....	1907
BROOKS, MAURICE GRAHAM, French Creek, W. Va.....	1915
BROWN, MISS ANNIE H., 31 Maple St., Stoneham, Mass.....	1909
BROWN, EDWARD J., 1609 S. Van Ness Ave., Los Angeles, Cal.....	1891
BROWN, HARRY A., 40 Talbot St., Lowell, Mass.....	1912
BROWN, MRS. HENRY TEMPLE, Lancaster, Mass.....	1912
BROWN, PHILIP G., 85 Vaughan St., Portland, Me.....	1911
BROWN, STEWARDSON, 20 E. Penn St., Germantown, Philadelphia, Pa.....	1895
BROWN, WM. JAMES, 250 Oliver Ave., Westmount, Quebec.....	1908
BROWNING, WM. HALL, 16 Cooper Square, New York, N. Y.....	1911
BRUEN, FRANK, 69 Prospect St., Bristol, Conn.....	1908
BRUMBAUGH, CHALMERS S., 1020 Cathedral St., Baltimore, Md.....	1916
BRYANT, HAROLD CHILD, Mus. Vert. Zool., Univ. of California, Berkeley, Cal.....	1913
BUNKER, CHARLES D., Kansas Univ. Museum, Lawrence, Kan.....	1916
BUCKWALTER, MRS. A. I., Union, Miss.....	1915
BURGESS, JOHN KINGSBURY, Chestnut St., Dedham, Mass.....	1898
BURLEIGH, THOS. D., 825 N. Negley Ave., Pittsburgh, Pa.....	1913
BURNETT, WILLIAM L., State Agric. College, Fort Collins, Colo.....	1895
BURTCH, VERDI, Branchport, N. Y.....	1903

BURTON, E. ROY, 60 Park Ave., Delaware, Ohio.....	1916
CABOT, LOUIS, Brookline, Mass.....	1904
CADUC, EUGENE E., 512 Massachusetts Ave., Boston, Mass.....	1910
CAESAR, HENRY A., 50 Union Square, New York, N. Y.....	1916
CALLENDER, JAMES PHILLIPS, 32 Broadway, New York, N. Y.....	1903
CAMPBELL, MISS CLARA D., 1253 Beacon St., Brookline, Mass.....	1913
CANTWELL, GEORGE G., 901 W. Main Ave., Puyallup, Wash.....	1916
CARPENTER, REV. CHARLES KNAPP, 174 Forest Ave., Oak Park, Ill.....	1894
CARPENTER, GEORGE I., 129 Dean St., Brooklyn, N. Y.....	1907
CARPENTER, HALL B., Kappa Sigma House, Amherst, Mass.....	1916
CARRIGER, H. W., 5185 Trask St., Fruitvale Station, Oakland, Cal.....	1913
CARTER, JOHN D., Lansdowne, Pa.....	1907
CASH, HARRY A., 448 Hope St., Providence, R. I.....	1898
CHAMBERLAIN, CHAUNCEY W., 36 Lincoln St., Boston, Mass.....	1885
CHAPIN, PROF. ANGIE CLARA, 25 Freeman Cottage, Wellesley College, Wellesley, Mass.....	1896
CHAPIN, JAMES P., Amer. Mus. of Natural History, New York, N. Y.....	1906
CHAPMAN, MRS. F. M., Englewood, N. J.....	1908
CHAPMAN, ROYAL N., Dept. Animal Biology, Univ. of Minnesota, Minneapolis, Minn.....	1911
CHASE, OMAR P., Andover, Mass.....	1916
CHASE, SIDNEY, 244 Marlborough St., Boston, Mass.....	1904
CHEESMAN, MORTON R., R. F. D. 3 Box 61, Murray, Utah.....	1911
CHRISTY, BAYARD H., 403 Frederick Ave., Sewickley, Pa.....	1901
CLARK, CLARENCE H., Lubec, Me.....	1913
CLARK, JOSIAH H., 238 Broadway, Paterson, N. J.....	1895
CLARKE, CHARLES E., 11 Chetwynd Road, Tufts College, Mass.....	1907
CLARKE, MISS HARRIET E., 9 Chestnut St., Worcester, Mass.....	1896
CLARKE, MISS MARY F., Bristow, Va.....	1916
CLEAVES, HOWARD H., Public Museum, New Brighton, N. Y.....	1907
CLEVELAND, DR. CLEMENT, 11 W. 11th St., New York, N. Y.....	1903
CLEVELAND, MISS LILIAN, Woods Edge Road, West Medford, Mass.....	1906
COALE, HENRY K., Highland Park, Ill.....	1883
COBB, MISS ANNIE W., 20 Amsden St., Arlington, Mass.....	1909
COBB, DR. STANLEY, 206 E. Chase St., Baltimore, Md.....	1909
CODY, PROF. WALTER GUYTON, 69 High St., Middletown, Conn.....	1916
COFFIN, MRS. PERCIVAL B., 3232 Groveland Ave., Chicago, Ill.....	1905
COGGINS, HERBERT L., 2929 Piedmont Ave., Berkeley, Cal.....	1913
COLBURN, ALBERT E., 806 S. Broadway, Los Angeles, Cal.....	1891
COLE, DR. LEON J., College of Agric., Univ. of Wis., Madison, Wis.....	1908
COMMONS, MRS. F. W., 608 Chamber of Commerce, Minneapolis, Minn.....	1902
CONEY, MRS. GEO. H., R. F. D., Box 25, Windsor, Conn.....	1906
COOK, FREDERICK W., 1604 East Harrison St., Seattle, Wash.....	1915
COOK, MISS LILIAN GILLETTE, Long Lea, Amherst, Mass.....	1899
COOKE, GEORGE J., Ambler, Pa.....	1916
COOKE, MISS MAY THACHER, 1328 Twelfth St., Washington, D. C.....	1915

COPE, FRANCIS R., Jr., Dimock, Pa.....	1892
COPELAND, MANTON, 88 Federal St., Brunswick, Me.....	1900
CORRINGTON, JULIAN DANA, 406 University Ave., Ithaca, N. Y.....	1916
CRAIG, WALLACE, Univ. of Maine, Orono, Me.....	1912
CRAM, R. J., 26 Hancock Ave., W., Detroit, Mich.....	1893
CRANDALL, C. W., 10 Third St., Woodside, N. Y.....	1891
CRANDALL, LEE S., N. Y. Zool. Park, New York, N. Y.....	1909
CRANE, Miss CLARA L., Dalton, Mass.....	1904
CRANE, Mrs. ZENAS, Dalton, Mass.....	1904
CREHORE, FREDERIC M., Box 1252, Boston, Mass.....	1913
CRESSY, Mrs. A. S., Avon Road, Unionville, Conn.....	1912
CROSBY, MAUNSELL S., Rhinebeck, N. Y.....	1904
CUMMINGS, Miss EMMA G., 16 Kennard Road, Brookline, Mass.....	1903
CURRIE, ROLLA P., 632 Keefer Place N. W., Washington, D. C.....	1895
CURRIER, EDMONDE SAMUEL, 416 E. Chicago St., Portland, Ore.....	1894
CURRY, HASKELL BROOKS, 60 Bay State Road, Boston, Mass.....	1916
CURTIS, CHARLES P., 244 Beacon St., Boston, Mass.....	1915
CUSHMAN, Miss ALICE, 919 Pine St., Philadelphia, Pa.....	1910
DANA, Miss ADA, 488 Centre St., Newton, Mass.....	1912
DANA, WM. SHEPHERD, Moriches, N. Y.....	1916
DANE, Mrs. ERNEST B., Chestnut Hill, Mass.....	1912
DANFORTH, STUART F., East Jaffrey, N. H.....	1916
DANKERS, CHARLES E., Corning, Mo.....	1916
DAVENPORT, Mrs. ELIZABETH B., Brattleboro, Vt.....	1898
DAVIDSON, Mrs. FRANCIS S., 1302 W., S. Grand Ave., Springfield, Ill.....	1912
DAVIS, CHARLES H., 700 N. Hamilton St., Saginaw, W. S., Mich.....	1906
DAY, CHESTER SESSIONS, 1711 Commonwealth Ave., Boston, Mass.....	1897
DEAN, R. H., 720 Quintard Ave., Anniston, Ala.....	1913
DEANE, GEORGE CLEMENT, 80 Sparks St., Cambridge, Mass.....	1899
DECKER, HAROLD K., 250 Livermore Ave., West New Brighton, N. Y.....	1916
DELOACH, R. J. H., 6605 Harvard Ave., Chicago, Ill.....	1910
DENSMORE, Miss MABEL, 629 4th St., Red Wing, Minn.....	1910
DERBY, RICHARD, 116 E. 79th St., New York, N. Y.....	1898
DERBY, WILLIAM M., Jr., 4857 Kimbark Ave., Chicago, Ill.....	1916
DEWEY, Dr. CHARLES A., 78 Plymouth Ave., Rochester, N. Y.....	1900
DEXTER, LEWIS, 1889 Elm St., Manchester, N. H.....	1915
DICKEY, DONALD R., San Rafael Heights, Pasadena, Cal.....	1907
DICKEY, SAMUEL S., Waynesburg, Pa.....	1905
DILL, Prof. HOMER R., State Univ. of Iowa, Iowa City, Ia.....	1916
DILLE, FREDERICK M., 2927 W. 28th Ave., Denver, Colo.....	1892
DIONNE, C. E., Laval University, Quebec, Canada.....	1893
DIXON, FREDERICK J., 111 Elm Ave., Hackensack, N. J.....	1891
DODSON, JOSEPH H., Kankakee, Ill.....	1909
DORN, Prof. LOUIS, Concordia College, Fort Wayne, Ind.....	1912
DRUMMOND, Miss MARY, 510 Spring Lane, Lake Forest, Ill.....	1904
DULL, Mrs. A. P. L., 211 N. Front St., Harrisburg, Pa.....	1900

DUNLOP, ERIC B., St. Regis Hotel, Winnipeg, Man.....	1915
DURFEE, OWEN, Box 125, Fall River, Mass.....	1887
DURYEA, Miss ANNIE B., 62 Washington St., Newark, N. J.....	1911
DYKE, ARTHUR CURTIS, 205 Summer St., Bridgewater, Mass.....	1902
EASTMAN, Capt. FRANCIS, B., Ft. Leavenworth, Kan.....	1909
EATON, Miss MARY S., 8 Monument St., Concord, Mass.....	1909
EATON, SCOTT HARRISON, Box 653, Lawrenceville, Ill.....	1912
EDSON, JOHN M., Marietta Road, Bellingham, Wash.....	1886
EDSON, WM. L. G., Highland Park, Rochester, N. Y.....	1916
EHINGER, Dr. CLYDE E., 100 W. Rosedale Ave., West Chester, Pa...	1904
EIFRIG, Prof. C. W. GUSTAVE, 504 Monroe Ave., Oak Park, Ill.....	1901
EIMBECK, Dr. AUGUST F., New Haven, Mo.....	1906
EKBLAW, WALTER ELMER, care of G. Ekblaw, Rantoul, Ill.....	1911
ELDRIDGE, ARTHUR S., South Lincoln, Mass.....	1912
ELLIOT, Mrs. J. W., 124 Beacon St., Boston, Mass.....	1912
ELLS, GEORGE P., Norwalk, Conn.....	1904
EMERSON, W. OTTO, Hayward, Cal.....	1916
EMMONS, RUPERT A., 17 T. St., N. E., Washington, D. C.....	1913
EMORY, Mrs. MARY DILLE, 156 Foundry St., Morgantown, W. Va...	1899
ERRETT, RUSSELL, Terrace Park, Ohio.....	1915
EVANS, Dr. EVAN M., 56 East 55th St., New York, N. Y.....	1916
EVANS, WILLIAM B., Moorestown, N. J.....	1897
FARLEY, JOHN A., 52 Cedar St., Malden, Mass.....	1904
FARQUHAR, ARTHUR, York, Pa.....	1916
FAXON, ALLAN HART, 7 Edwards St., Southbridge, Mass.....	1916
FAY, DUDLEY B., 287 Beacon St., Boston, Mass.....	1916
FAY, S. PRESCOTT, 53 State St., Boston, Mass.....	1907
FELGER, ALVA HOWARD, North Side High School, Denver, Colo....	1898
FELL, Miss EMMA TREGO, 1534 N. Broad St., Philadelphia, Pa.....	1903
FINNEY, Mrs. E. S., St. Davids, Pa.....	1916
FISHER, Miss ELIZABETH WILSON, 2222 Spruce St., Philadelphia, Pa.	1896
FISHER, Dr. G. CLYDE, American Mus. Nat. Hist., New York, N. Y...	1908
FLANAGAN, JOHN H., 89 Power St., Providence, R. I.....	1898
FLEISCHER, EDWARD, 1591 Union St., Brooklyn, N. Y.....	1916
FLETCHER, Mrs. MARY E., Proctorsville, Vt.....	1898
FLOYD, CHARLES BENTON, 19 Woodbine St., Auburndale, Mass.....	1916
FOOT, Dr. NATHAN CHANDLER, Hyde Park, Mass.....	1916
FOOTE, Miss F. HUBERTA, 90 Locust Hill Ave., Yonkers, N. Y.....	1897
FORBES, ALEXANDER, Milton, Mass.....	1912
FORDYCE, GEO. L., 40 Lincoln Ave., Youngstown, Ohio.....	1901
FOSTER, FRANK B., Haverford, Pa.....	1916
FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Cal.....	1892
FOWLER, HENRY W., Acad. Nat. Sciences, Philadelphia, Pa.....	1898
FOX, Dr. WILLIAM H., 1826 Jefferson Place, Washington, D. C.....	1883
FRANCIS, NATHANIEL A., 35 Davis Ave., Brookline, Mass.....	1913
FRASER, DONALD, Johnstown, N. Y.....	1902
FREEMAN, Miss HARRIET E., 37 Union Park, Boston, Mass.....	1903

FRENCH, CHARLES H., Canton, Mass.....	1904
FRENCH, Mrs. CHAS. H., Canton, Mass.....	1908
FROTHINGHAM, Mrs. RANDOLPH, 113 Commonwealth Ave., Boston, Mass.....	1913
FRY, HENRY J., 224 Manheim St., Philadelphia, Pa.....	1916
FULLER, HENRY C., 1348 Euclid St., Washington, D. C.....	1916
FULLER, Mrs. T. Otis, Needham, Mass.....	1909
GABRIELSON, IRA N., Biological Survey, Washington, D. C.....	1912
GARDINER, CHARLES BARNES, 175 W. Main St., Norwalk, Ohio.....	1903
GARST, Dr. JULIUS, 29 Oread St., Worcester, Mass.....	1916
GERTKEN, SEVERIN, Prof., St. Johns University, Collegeville, Minn.....	1912
GIANINI, CHAS. A., Poland, N. Y.....	1911
GIBSON, LANGDON, 5 Union St., Schenectady, N. Y.....	1887
GILMAN, M. FRENCH, Fort Bidwell, Cal.....	1907
GLADDING, Mrs. JOHN R., 30 Stimson Ave., Providence, R. I.....	1912
GODING, EDWARD N., 73 Tremont St., Boston, Mass.....	1916
GOELITZ, WALTER A., 1622 Judson Ave., Ravinia, Ill.....	1916
GOLDMAN, LUTHER J., Pocatello, Idaho.....	1916
GOLSAN, LEWIS S., Box 97, Prattville, Ala.....	1912
GOODRICH, Miss JULIET T., 1210 Astor St., Chicago, Ill.....	1904
GORDON, HARRY E., 168 Asbury St., Rochester, N. Y.....	1911
GORST, CHARLES C., 2 Arnold Circle, Cambridge, Mass.....	1916
GOULD, ALFRED M., Malden, Mass.....	1916
GOULD, JOSEPH E., Arcadia, Fla.....	1889
GRAHAM, WM. J., Aledo, Ill.....	1909
GRANGER, Miss HELEN, Peterborough, N. H.....	1904
GRANGER, WALTER, Amer. Mus. Nat. Hist., New York, N. Y.....	1891
GRANT, WM. W., 600 Castle St., Geneva, N. Y.....	1910
GRAVES, Mrs. CHARLES B., 4 Mercer St., New London, Conn.....	1905
GRAY, GEORGE M., Woods Hole, Mass.....	1916
GREENOUGH, HENRY VOSE, 1134 Beacon St., Brookline, Mass.....	1901
GREGORY, STEPHEN S., JR., 52 Cedar St., Chicago, Ill.....	1916
GRISCOM, LUDLOW, 20 Fifth Ave., New York, N. Y.....	1908
GROSS, Dr. ALFRED O., 11 Boody St., Brunswick, Me.....	1907
GROSVENOR, GILBERT H., Nat. Geographic Soc., Washington, D. C.....	1914
GROW, Mrs. EUGENE J., Lebanon, N. H.....	1916
GUILD, HENRY R., 102 Beacon St., Boston, Mass.....	1912
HADLEY, ALDEN H., Monrovia, Indiana.....	1906
HAGAR, J. A., 79 Washington Park, Newtonville, Mass.....	1914
HALLETT, GEO. H., Jr., 199 Owen Ave., Landsdowne, Pa.....	1911
HANDLEY, CHARLES O., Lewisburg, W. Va.....	1916
HANKINSON, THOS. LEROY, 900 11th St., Charleston, Ill.....	1897
HARDON, Mrs. HENRY W., Wilton, Conn.....	1905
HARPER, FRANCIS, 3001-24th St., N. E., Washington, D. C.....	1907
HARRINGTON, RALPH M., 953 Central Y. M. C. A., Brooklyn, N. Y....	1915
HARRIS, HARRY, Kansas City, Mo.....	1911

HARRISON, RICHARD C., 142 Huntington St., New Haven, Conn.....	1916
HARVEY, JOHN L., Mercantile Bldg., Waltham, Mass.....	1916
HARVEY, Miss RUTH S., 1203 Ryland Ave., Cincinnati, O.....	1902
HASKELL, Miss SADIA, The Valois, Washington, D. C.....	1916
HATCH, Dr. ROYAL, 578 Washington St., Wellesley, Mass.....	1916
HATHAWAY, HARRY S., Box 1466, Providence, R. I.....	1897
HAVEMEYER, H. O., Jr., Mahwah, N. J.....	1893
HAZARD, Hon. ROWLAND G., Peace Dale, R. I.....	1885
HELME, ARTHUR H., Miller Place, N. Y.....	1888
HENDERSON, Judge JUNIUS, 627 Pine St., Boulder, Colo.....	1903
HENDRICKSON, W. F., 276 Hillside Ave., Jamaica, N. Y.....	1885
HENNESSEY, FRANK C., 457 Albert St., Ottawa, Canada.....	1914
HERMANN, THEODORE L., 273 Neal Dow Ave., West New Brighton, N. Y.....	1916
HERRICK, FRANCIS H., Adelbert College, Cleveland, Ohio.....	1913
HERRICK, HAROLD, 123 William St., New York, N. Y.....	1905
HERRICK, NEWBOLD L., Cedarhurst, N. Y.....	1913
HILL, JAMES HAYNES, Box 485, New London, Conn.....	1897
HILL, Mrs. THOMAS R., Box 491, Chautauqua, N. Y.....	1903
HINCKLEY, GEO. LYMAN, Redwood Library, Newport, R. I.....	1912
HINCKLEY, HENRY H., 50 West Hill Ave., Melrose Highlands, Mass.....	1912
HINE, Prof. JAMES STEWART, Ohio State Univ., Columbus, Ohio.....	1899
HITCHCOCK, Mrs. ELEANOR B., 165 Buckingham St., Waterbury, Conn.....	1916
HIX, GEORGE E., 100 W. 91st St., New York, N. Y.....	1904
HODGE, Prof. CLIFTON FREMONT, Univ. of Ore., Eugene, Oregon.....	1899
HOLLAND, HAROLD MAY, 320 S. Grammercy Place, Los Angeles, Cal.....	1910
HOLLAND, Dr. WILLIAM J., Carnegie Museum, Pittsburgh, Pa.....	1899
HOLLISTER, WARREN D., 235 W. 63rd St., Chicago, Ill.....	1901
HOLMAN, RALPH H., 33 Chestnut St., Stoneham, Mass.....	1907
HOLT, ERNEST G., Biological Survey, Washington, D. C.....	1911
HOLTON, OLIVER W., 107 Edgemoor Lane, Ithaca, N. Y.....	1916
HONYWILL, ALBERT W., Jr., 50 Farmington Ave., Hartford, Conn.....	1907
HORSFALL, ROBERT BRUCE, 1457 E. 18 St., Portland, Ore.....	1905
HORTON, ISAAC CHESTER, 2207 Washington St., Canton, Mass.....	1916
HOWLAND, R. H., 164 Wildwood Ave., Upper Montclair, N. J.....	1903
HOYT, WILLIAM H., Box 425, Stamford, Conn.....	1907
HUBBARD, C. ANDRESEN, 1249 E. Harrison St., Portland, Ore.....	1916
HUBBARD, Prof. MARIAN E., Wellesley College, Wellesley, Mass.....	1916
HUBBARD, RALPH, 516 Stewart Ave., Ithaca, N. Y.....	1916
HUBBARD, Mrs. SARA A., 177 Woodruff Ave., Brooklyn, N. Y.....	1891
HUBER, WHARTON, Gwynedd Valley, Pa.....	1915
HUDSON, Mrs. K. W., The Bellevue, Intervale, N. H.....	1911
HUNN, JOHN T. SHARPLESS, 1218 Prospect Ave., Plainfield, N. J.....	1895
HUSSEY, ROLAND F., 1308 E. Anne St., Ann Arbor, Mich.....	1915
INGALLS, CHARLES E., East Templeton, Mass.....	1885
INGERSOLL, ALBERT M., 908 F St., San Diego, Cal.....	1885

ISHAM, CHAS. B., 27 W. 67 St., New York, N. Y.....	1891
JACK, EDWIN L., 134 William St., Portland, Me.....	1916
JACKSON, HARTLEY H. T., Biological Survey, Washington, D. C.....	1910
JACKSON, THOMAS H., 304 N. Franklin St., West Chester, Pa.....	1888
JAMES, NORMAN, Catonsville, Md.....	1913
JENKS, CHAS. W., Bedford, Mass.....	1912
JENNEY, CHARLES F., 100 Gordon Ave., Hyde Park, Mass.....	1905
JENNINGS, RICHARD D., 129 Harrison St., East Orange, N. J.....	1913
JENSEN, J. K., Wahpeton, N. D.....	1912
JEWETT, STANLEY G., Pendleton, Oregon.....	1906
JOHNSON, FRANK E., 16 Amackassin Terrace, Yonkers, N. Y.....	1888
JOHNSON, MRS. GRACE PETTIS, City Library Asso., Springfield, Mass.....	1908
JOHNSON, JULIUS M., 77 Herkimer St., Brooklyn, N. Y.....	1913
JOHNSON, WILBUR WALLACE, 144 Harrison St., East Orange, N. J....	1914
JORDAN, A. H. B., Everett, Wash.....	1888
JUMP, MRS. EDWIN R., 97 Oakleigh Road, Newton, Mass.....	1910
JUSTICE, HENRY, 2023 Pine St., Philadelphia, Pa.....	1913
KEAYS, JAMES EDWARD, 328 St. George St., London, Ontario.....	1899
KELLOGG, RALPH T., Silver City, N. M.....	1913
KELSO, DR. JOHN E. H., Braeside, Edgewood, Lower Arrow Lake, B. C.	1915
KENNEDY, DR. HARRIS, Readville, Mass.....	1916
KENT, DUANE E., 47 West St., Rutland, Vt.....	1913
KENT, EDWIN C., 156 Broadway, New York, N. Y.....	1907
KERMODE, FRANCIS, Provincial Museum, Victoria, B. C.....	1904
KEYES, PROF. CHAS. R., Mt. Vernon, Ia.....	1904
*KIDDER, NATHANIEL T., Milton, Mass.....	1906
KIHN, WILFRED L., 755 Eastern Parkway, Brooklyn, N. Y.....	1913
KILGORE, WILLIAM, JR., 132 Orlin Ave., S. E., Minneapolis, Minn....	1906
KINGSBURY, FREDERICK S., Needham, Mass.....	1916
KING, LeROY, 20 E. 84th St., New York, N. Y.....	1901
KIRKHAM, MRS. JAMES W., 275 Maple St., Springfield, Mass.....	1904
*KIRKHAM, STANTON D., 152 Howell St., Canandaigua, N. Y.....	1910
KIRKWOOD, FRANK C., R. F. D. 3, Monkton, Md.....	1892
KITTREDGE, JOSEPH, JR., U. S. Forest Service, Missoula, Mont.....	1910
KLOSEMAN, Miss JESSIE E., 9 School St., Dedham, Mass.....	1909
KNAEBEL, ERNEST, 3707 Morrison St., Chevy Chase, D. C.....	1906
KNAPP, MRS. HENRY A., 301 Quincy Ave., Scranton, Pa.....	1907
KNOLHOFF, FERDINAND WILLIAM, Amityville, N. Y.....	1890
KRETZMAN, Prof. P. E., 1230 St. Anthony Ave., St. Paul, Minn.....	1913
KUSER, ANTHONY R., Bernardsville, N. J.....	1908
KUSER, MRS. ANTHONY R., Bernardsville, N. J.....	1910
KUSER, JOHN DRYDEN, Bernardsville, N. J.....	1910
LACEY, HOWARD GEORGE, R. F. D. 1, Kerrville, Texas.....	1899
LaDOW, STANLEY V., 622 W. 113th St., New York, N. Y.....	1913

*Life Associate.

LAMB, CHAS. R., 77 Franklin St., Boston, Mass.....	1912
LANCASHIRE, MRS. JAMES HENRY, 1069 5th Ave., New York, N. Y....	1909
LANG, HERBERT, Amer. Mus. Nat. Hist., New York, N. Y.....	1907
LANTZ, Prof. DAVID E., 1443 Belmont St., Washington, D. C.....	1885
LASELL, LOUISA W., 34 Jackson St., Cliftondale, Mass.....	1916
LATHAM, ROY, Orient, N. Y.....	1916
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Philadelphia, Pa.....	1902
LAWRENCE, JOHN L., Lawrence, N. Y.....	1915
LEISTER, CLAUDE W., 113 Osmun Place, Ithaca, N. Y.....	1916
LENGERKE, JUSTUS VON, 200 5th Ave., New York, N. Y.....	1907
LEOPOLD, ALDO, 135 S. 14th St., Albuquerque, N. Mex.....	1916
LEOPOLD, NATHAN, JR., 4754 Greenwood Ave., Chicago, Ill.....	1916
LEVEY, MRS. WILLIAM, Alton Bay, N. H.....	1915
LEWIS, HARRISON F., R. R. 2, Yarmouth, Nova Scotia.....	1912
LEWIS, MRS. HERMAN E., 120 Grove St., Haverhill, Mass.....	1912
LIGON, J. STOKLEY, P. O. Box 131, Albuquerque, New Mexico.....	1912
LINCOLN, FREDERICK CHARLES, Colo. Mus. Nat. Hist., Denver, Colo.....	1910
LINGS, GEO. H., Richmond Hill, Cheshire, Eng.....	1913
LITTLE, LUTHER 2d, Sierra Madre, Cal.....	1913
LLOYD, HOYES, 11 Swanwick Ave., Toronto, Canada.....	1916
LORD, THOMAS HENRY, Newington, N. H.....	1916
LOW, ETHELBERT T., 30 Broad St., New York, N. Y.....	1907
LUCE, MRS. FRANCES P., Vineyard Haven, Mass.....	1912
LUM, EDWARD H., Chatham, N. J.....	1904
LUND, EDWARD G., 529 Beacon St., Boston, Mass.....	1915
MABBOTT, DOUGLAS C., Biological Survey, Washington, D. C.....	1916
MACDONALD, MISS HAZEL, Kersey, Colo.....	1916
MACKIE, DR. WILLIAM C., 54 Coolidge St., Brookline, Mass.....	1908
MACLAY, MARK W., JR., 830 Park Ave., New York, N. Y.....	1905
MADDOCK, MISS EMELINE, 6386 Drexel Road, Overbrook, Pa.....	1897
MADISON, HAROLD L., Park Museum, Providence, R. I.....	1912
MAHER, J. E., 351 Communipaw Ave., Jersey City, N. J.....	1902
MAIN, FRANK H., 227 N. 18 St., Philadelphia, Pa.....	1913
MAITLAND, ROBERT L., 141 Broadway, New York, N. Y.....	1889
MANN, ELIAS P., Williamstown, Mass.....	1912
MAPLES, JAMES C., Port Chester, N. Y.....	1913
MARBLE, RICHARD M., Woodstock, Vt.....	1907
MARKS, EDWARD SIDNEY, 655 Kearney Ave., Arlington, N. J.....	1915
MARRS, MRS. KINGSMILL, 9 Commonwealth Ave., Boston, Mass.....	1903
MARSHALL, ALFRED, 17 S. Jefferson St., Chicago, Ill.....	1916
MARSHALL, ELLA M. O., New Salem, Mass.....	1912
MARTIN, MISS JANET, Milford, Conn.....	1916
MARTIN, MISS MARIA ROSS, Box 365, New Brunswick, N. J.....	1902
MARX, EDWARD J. F., 207 Burke St., Easton, Pa.....	1907
MATTERN, EDWIN S., 1042 Walnut St., Allentown, Pa.....	1912
MATTERN, WALTER I., 1042 Walnut St., Allentown, Pa.....	1912

MAY, DR. JOHN B., Cohasset, Mass.....	1916
MAYNARD, MRS. EDITH CLARK, Bryn Mawr, Pa.....	1916
McCLINTOCK, NORMAN, 504 Amberson Ave., Pittsburgh, Pa.....	1900
McCONNELL, THOMAS S., 1813 Huey St., McKeesport Pa.....	1915
McCOOK, PHILIP J., 571 Park Ave., New York, N. Y.....	1895
McHATTON, DR. HENRY, 335 College St., Macon, Ga.....	1898
McILHENNY, EDWARD AVERY, Avery Island, La.....	1894
McINTIRE, MRS. HERBERT BRUCE, 4 Garden St., Cambridge, Mass....	1908
McLAIN, ROBERT BAIRD, McLain Building, Wheeling, W. Va.....	1893
McLANE, JAMES LATIMER, JR., Garrison, Md.....	1915
McLEAN, HON. GEO. P., 1520 New Hampshire Ave., Washington, D. C.....	1913
McMAHON, WALT F., 74 Eddy St., West Newton, Mass.....	1913
McMILLAN, MRS. GILBERT N., Gorham, N. H.....	1902
MEAD, MRS. E. M., 303 W. 84th St., New York, N. Y.....	1904
MEAD, MISS M., 975 Pine St., Winnetka, Ill.....	1916
MEANS, CHAS. J., 29 Marlborough St., Boston, Mass.....	1912
MENGEL, G. HENRY, 739 Madison Ave., Reading, Pa.....	1913
MERRIAM, HENRY F., R. F. D. 1, Newton, N. J.....	1905
MERRILL, ALBERT R., Hamilton, Mass.....	1912
MERRILL, D. E., State College, New Mexico.....	1913
MERRILL, HARRY, 316 State St., Bangor, Maine.....	1883
MERSHON, W. B., Saginaw, Mich.....	1905
METCALF, Z. P., A. & M. College, West Raleigh, N. C.....	1913
MEYER, LIEUT. G. RALPH, C. D. of Oahu, Honolulu, H. I.....	1913
MEYER, MISS HELOISE, LENOX, Mass.....	1913
MILLER, MISS BERTHA STUART, Box 2, Palisade, N. J.....	1915
MILLER, CHAS. W., Jaffna College, Jaffna, Ceylon.....	1909
MILLER, MRS. ELISABETH C. T., 1010 Euclid, Cleveland, Ohio.....	1916
MILLS, ENOS A., Estes Park, Colo.....	1916
MINER, LEO D., 1836 Vernon St., N. W. Washington, D. C.....	1913
MITCHELL, CATHERINE ADAMS, Riverside, Ill.....	1911
MITCHELL, MASON, U. S. Consul, Apia, Samoa.....	1916
MITCHELL, DR. WALTON I., 603 Beacon Bldg., Wichita, Kan.....	1893
MOODY, HARRY LEE, Lake Wilson, Minn.....	1916
MOORE, RAYMOND W., Kensington, Md.....	1916
MORCOM, G. FREAN, Box 175, Huntington Beach, Cal.....	1886
MORLEY, S. GRISWOLD, 2535 Etna St., Berkeley, Cal.....	1911
MORRISON, ALVA, 53 Middle St., Braintree, Mass.....	1915
MORSE, HARRY GILMAN, Huron, Ohio.....	1912
MOSHER, FRANKLIN H., 17 Highland Ave., Melrose Highlands, Mass....	1905
MOUSLEY, WM. HENRY, Hatley, Que., Canada.....	1915
MUNRO, J. A., Okanagan Landing, British Columbia, Canada.....	1913
MUNSON, Prof. WILLIAM H., 208 Winona St., Winona, Minn.....	1915
MURIE, O. J., 219 7th Ave. S, Moorhead, Minn.....	1913
MYERS, MRS. HARRIET W., 311 N. Ave. 66, Los Angeles, Cal.....	1906

MYERS, Miss LUCY F., Brookside, Poughkeepsie, N. Y.....	1898
NEWBERRY, WALTER C., Winnemucca, Nev.....	1916
NEWELL, Mrs. H. S., 2431 E. 5th St., Duluth, Minn.....	1912
NIMS, Mrs. LUCIUS, 17 Union St., Greenfield, Mass.....	1913
NOBLE, ELEANOR G., 66 Sparks St., Cambridge, Mass.....	1916
NOBLE, G. KINGSLEY, Mus. Comp. Zoölogy, Cambridge, Mass.....	1916
NOKES, Dr. I. D., 820 Marsh-Strong Bldg., Los Angeles, Cal.....	1915
NOLTE, Rev. FELIX, St. Benedict's College, Atchison, Kan.....	1903
NORRIS, EDWARD, 301 W. Springfield Ave., Philadelphia, Pa.....	1916
NORRIS, J. PARKER, Jr., 2122 Pine St., Philadelphia, Pa.....	1904
NORRIS, ROY C., 725 N. 10th St., Richmond, Ind.....	1904
NOWELL, JOHN ROWLAND, 300 Parkwood Boulevard, Schenectady, N. Y.....	1897
OGDEN, Dr. HENRY VINING, 141 Wisconsin St., Milwaukee, Wis.....	1897
OHL, H. C., McKittrick, Cal.....	1913
OLDYS, HENRY, Silver Springs, Md.....	1896
*OLIVER, Dr. HENRY KEMBLE, 4 Newbury St., Boston, Mass.....	1900
ORDWAY, Miss ELIZABETH I., 20 Myrtle St., Winchester, Mass.....	1913
OSBORN, ARTHUR A., 58 Washington St., Peabody, Mass.....	1912
OTTEMILLER, FREE, 30 N. Pine St., York, Pa.....	1914
OVERTON, Dr. FRANK, Patchogue, N. Y.....	1909
*OWEN, Miss JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo.....	1897
PAINE, AUGUSTUS G., Jr., 18 West 49th St., New York, N. Y.....	1886
PALMER, R. H., 222 Dietrich Block., Pocatello, Ida.....	1916
PALMER, Dr. SAMUEL C., Swarthmore College, Swarthmore, Pa.....	1899
PANGBURN, CLIFFORD H., Haverford, Pa.....	1907
PARKER, EDWARD LUDLOW, Nashawtuc Road, Concord, Mass.....	1916
PAUL, LUCIUS H., 19 Aurora St., Rochester, N. Y.....	1908
PEABODY, Rev. P. B., Independence, Ia.....	1903
PECK, MORTON E., 1458 Court St., Salem, Ore.....	1909
PENARD, THOS. E., 16 Norfolk Rd., Arlington, Mass.....	1912
PENFIELD, Miss ANNIE L., 155 Charles St., Boston, Mass.....	1912
PENNINGTON, FRED ALBERT, 5529 Kenwood Ave., Chicago, Ill.....	1910
PEPPER, Dr. WM., 1811 Spruce St., Philadelphia, Pa.....	1911
PERKINS, ARTHUR W., 21 High St., Farmington, Me.....	1915
PERKINS, Dr. GEO. H., Univ. of Vt., Burlington, Vt.....	1912
PERRY, Dr. HENRY JOSEPH, 1720 Beacon St., Boston, Mass.....	1909
PETERS, ALBERT S., Lake Wilson, Minn.....	1908
PETERS, JAMES LEE, Harvard, Mass.....	1904
PHELPS, FRANK M., 212 E. 4th St., Elyria, Ohio.....	1912
PHELPS, Mrs. J. W., Box 36, Northfield, Mass.....	1899
PHILIPP, PHILIP B., 220 Broadway, New York, N. Y.....	1907
PHILLIPS, ALEXANDER H., 54 Hodge Road, Princeton, N. J.....	1891
PHILLIPS, CHAS. LINCOLN, 5 West Weir St., Taunton, Mass.....	1912

*Life Associate.

PINCHOT, GIFFORD, 1617 Rhode Island Ave., Washington, D. C.	1910
POE, Miss MARGARETTA, 1204 N. Charles St., Baltimore, Md.	1899
POND, Miss ELLEN J., 160 Lexington Ave., New York, N. Y.	1909
POOLE, EARL L., School Admin. Bldg., Reading, Pa.	1916
PORTER, LOUIS H., Stamford, Conn.	1893
POST, WILLIAM S., Bernardsville, N. J.	1911
POTTER, JULIAN K., 563 Bailey St., Camden, N. J.	1912
PRAEGER, WILLIAM E., 421 Douglas Ave., Kalamazoo, Mich.	1892
PRICE, JOHN HENRY, Crown W Ranch, Knowlton, Mont.	1906
PRICE, LIGON, R. F. D. 1, Dunmore, W. Va.	1913
PROVO, W. F., Wickliffe, Ohio	1916
PUMYEA, NELSON D. W., Mt. Holly, N. J.	1916
PURDY, JAMES B., R. F. D. 4, Plymouth, Mich.	1893
QUIGGLE, JAMES C., 1410 M St., N. W., Washington, D. C.	1915
RADETSKY, HARVEY D., 4433 Federal Boulevard, Denver, Colo.	1915
RAMSDEN, CHAS. T., Box 146, Guantanamo, Cuba.	1912
REA, PAUL M., Charleston Museum, Charleston, S. C.	1912
REAGH, Dr. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass.	1896
REDFIELD, Miss ELISA W., 248 Newbury St., Boston, Mass.	1897
REED, ALEX, 123 E. Maiden St., Washington, Pa.	1916
REGAR, H. SEVERN, 14 De Kalb St., Norristown, Pa.	1916
REHN, JAMES A. G., 6033 B Catherine St., Philadelphia, Pa.	1901
REICHENBERGER, Mrs. VICTOR M., Hotel Essex, New York, N. Y.	1916
RHOADS, CHARLES J., National Reserve Bank, Philadelphia, Pa.	1895
RICE, JAMES HENRY, Jr., Summerville, S. C.	1910
RICE, WARD J., Roachdale, Ind.	1913
RICHARDS, Miss HARRIET E., 36 Longwood Ave., Brookline, Mass.	1900
RIDDLE, ROBERT, 5242 Irving St., Philadelphia, Pa.	1916
RIDDLE, S. EARL, Y. M. C. A., Chester, Pa.	1916
RIDGWAY, JOHN L., Chevy Chase, Md.	1890
RIKER, CLARENCE B., 43 Scotland Road, South Orange, N. J.	1885
ROBBINS, CHARLES A., Onset, Mass.	1914
ROBERTS, WILLIAM ELY, 207 McKinley Ave., Lansdowne, Pa.	1902
ROBERTSON, HOWARD, 157 S. Wilton Drive, Los Angeles, Cal.	1911
ROBINSON, ANTHONY W., Haverford, Pa.	1903
ROE, CHAS. M., 3012 Bathgate St., Cincinnati, O.	1906
*ROGERS, CHARLES H., Amer. Mus. Nat. Hist., New York, N. Y.	1904
ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.	1896
ROPER, KENTON, 509 N. 4th St., Steubenville, Ohio.	1911
ROSS, GEORGE H., 23 West St., Rutland, Vt.	1904
ROSS, Dr. LUCRETIVS H., 507 Main St., Bennington, Vt.	1912
ROWLEY, JOHN, 42 Plaza Drive, Berkeley, Cal.	1889
SACKETT, CLARENCE, Rye, N. Y.	1910
SAGE, HENRY M., Menands Road, Albany, N. Y.	1885

*Life Associate.

SANBORN, COLIN C., P. O. Box 50, Evanston, Ill.....	1911
SAUNDERS, ARETAS A., 143 East Ave., Norwalk, Conn.....	1907
SAVAGE, JAMES, 1097 Ellicott Sq., Buffalo, N. Y.....	1895
SAVAGE, WALTER GILES, Glenwood, Ark.....	1898
SAWYER, EDMUND J., Box 123, Watertown, N. Y.....	1915
SCHAEFER, OSCAR FREDERICK, U. S. Forest Service, Winslow, Ariz.....	1916
SCHENCK, FREDERIC, Lenox, Mass.....	1912
SCHERMERHORN, CHARLES F., Oak Knoll, Fla.....	1915
SCHORGER, A. W., Forest Products Laboratory, Madison, Wis.....	1913
SCOVILLE, SAMUEL, JR., Haverford, Pa.....	1916
SEARS, WILLIAM R., 73 Tremont St., Boston, Mass.....	1916
SERRILL, WILLIAM J., Haverford, Pa.....	1916
SHARPLES, ROBERT P., West Chester, Pa.....	1907
SHAW, CHAS. F., 676 Bedford St., North Abington, Mass.....	1912
SHAW, HENRY S., Dover, Mass.....	1916
SHAW, WILLIAM T., 900 Campus Ave., Pullman, Wash.....	1908
SHEARER, DR. AMON R., Mont Belvieu, Tex.....	1905
SHELDON, CHARLES, Woodstock, Vt.....	1911
SHELTON, ALFRED, Univ. of Oregon, Eugene, Ore.....	1911
SHIRLEY, GARLAND L., Dayton, Va.....	1916
SHOEMAKER, CLARENCE R., 3116 P St., Washington, D. C.....	1910
SHOEMAKER, HENRY, 71 Broadway, New York, N. Y.....	1912
SHOFFNER, CHARLES P., 1345 Arch St., Philadelphia, Pa.....	1915
SHROSBREE, GEORGE, Public Museum, Milwaukee, Wis.....	1899
SILLIMAN, O. P., Salinas, Cal.....	1915
SILSBEE, THOMAS, 115 Marlborough St., Boston, Mass.....	1916
SILVER, JAMES, 2919 S. Dakota Ave., Washington, D. C.....	1916
SIMMONS, GEO. FINLAY, Rice Institute, Houston, Texas.....	1910
SKINNER, M. P., Summerville, S. C.....	1916
SMITH, AUSTIN PAUL, High Island, Texas.....	1911
SMITH, Rev. FRANCIS CURTIS, 812 Columbia St., Utica, N. Y.....	1903
SMITH, Prof. FRANK, 913 West California Ave., Urbana, Ill.....	1909
SMITH, HORACE G., State Museum, State House, Denver, Colo.....	1888
SMITH, Dr. HUGH M., 1209 M St. N. W., Washington, D. C.....	1886
SMITH, LESTER W., 60 Cottage St., Meriden, Conn.....	1916
SMITH, LOUIS IRVIN, Jr., 3908 Chestnut St., Philadelphia, Pa.....	1901
SMITH, NAPIER, 46 Côtés des Neiges Road, Montreal, Quebec.....	1915
SMITH, Mrs. WALLIS CRAIG, 525 N. Michigan Ave., Saginaw W. S. Mich.....	1916
SMYTH, Prof. ELLISON A., Jr., Polytechnic Inst., Blacksburg, Va....	1892
SNYDER, WILL EDWIN, 309 De Clark St., Beaver Dam, Wis.....	1895
SPELMAN, HENRY M., 48 Brewster St., Cambridge, Mass.....	1911
SQUIER, THEO. L., 149 Freemont St., Battle Creek, Mich.....	1915
STANTON, Prof. J. Y., 410 Main St., Lewiston, Me.....	1883
STANWOOD, Miss CORDELIA JOHNSON, Ellsworth, Me.....	1909
STAPLETON, RICHARD, 219 High St., Holyoke, Mass.....	1916

STEPHENS, T. C., Morningside College, Sioux City, Iowa	1909
STEVENS, Dr. J. F., Box 1546, Lincoln, Neb.	1908
STEWART, PHILLIP B., 1228 Wood Ave., Colorado Springs, Colo.	1915
STILES, EDGAR C., 345 Main St., West Haven, Conn.	1907
STODDARD, HERBERT LEE, Field Museum Nat. Hist., Chicago, Ill.	1912
STONE, CLARENCE F., Branchport, N. Y.	1903
STORER, TRACY IRVIN, Mus. Vert. Zoölogy, Berkeley, Cal.	1916
STREET, J. FLETCHER, Beverly, N. J.	1908
STUART, FRANK A., 118 Green St., Marshall, Mich.	1915
STUART, GEO. H., 3rd, 923 Clinton St., Philadelphia, Pa.	1913
STURGIS, S. WARREN, Groton, Mass.	1910
STURTEVANT, EDWARD, St. George's School, Newport, R. I.	1896
SUGDEN, ARTHUR W., 52 Highland St., Hartford, Conn.	1913
SURFACE, HARVEY ADAM, Harrisburg, Pa.	1897
SWAIN, JOHN MERTON, Box 528, Farmington, Me.	1899
SWEENEY, J. A., Forest Service, Halsey, Neb.	1916
SWENK, MYRON H., 3028 Starr St., Lincoln, Neb.	1904
TATNALL, SAMUEL A., 503 Hansberry St., Philadelphia, Pa.	1916
TAYLOR, ALEXANDER R., 1410 Washington St., Columbia, S. C.	1907
TAYLOR, LIONEL E. Bankhead, Kelowna, B. C.	1913
TAYLOR, Dr. WALTER P., 1428 Perry Place, N. W., Washington, D. C.	1916
TAYLOR, WARNER, 419 Sterling Court, Madison, Wis.	1916
TERRILL, LEWIS McL., 44 Stanley Ave., St. Lambert, Quebec.	1907
THOMAS, Miss EMILY HINDS, Bryn Mawr, Pa.	1901
THOMPSON, J. WALCOTT, 602 Continental Nat'l Bk. Bldg., Salt Lake City, Utah.	1916
THORNS, Miss JULIA A., Asheboro, N. C.	1916
TINKER, ALMERIN D., 631 S. 12th St., Ann Arbor, Mich.	1907
TOWER, Mrs. KATE DENIG, 9 Newbury St., Boston, Mass.	1908
TOWNSHEND, HENRY HOTCHKISS, 69 Church St., New Haven, Conn.	1915
TREGANZA, A. O., 614 E. South St., Salt Lake City, Utah.	1906
TROTTER, WILLIAM HENRY, 36 N. Front St., Philadelphia, Pa.	1899
TRUMBELL, J. H., Plainville, Conn.	1907
TUDBURY, WARREN C., Box 734, Washington, D. C.	1903
TWEEDY, EDGAR, 27 Fairview Ave., Danbury, Conn.	1902
TYLER, JOHN G., 149 Blackstone Ave., Fresno, Cal.	1912
TYLER, Dr. WINSOR M., 522 Massachusetts Ave., Lexington, Mass.	1912
UNDERWOOD, Wm. LYMAN, Mass. Inst. of Technology, Cambridge, Mass.	1900
VALENTINE, Miss ANNA J., Bellefonte, Pa.	1905
VAN CORTLANDT, Miss ANNE S., Croton-on-Hudson, N. Y.	1885
VAN NAME, WILLARD GIBBS, Am. Mus. Nat. History, New York, N. Y.	1900
VETTER, Dr. CHARLES, 2 West 88th St., New York, N. Y.	1898
VIERECK, HENRY L., Biological Survey, Washington, D. C.	1916
VIETOR, Dr. EDWARD W., 166 St. James Place, Brooklyn, N. Y.	1911

VIETOR, Mrs. EDWARD W., 166 St. James Place, Brooklyn, N. Y.....	1914
VISHER, Dr. STEPHEN S., State Normal, Moorhead, Minn.....	1904
WADSWORTH, CLARENCE S., 27 Washington St., Middletown, Conn.....	1906
WALKER, GEO. R., R. D. 3, Murray, Utah.....	1909
WALKER, Dr. R. L., 355 Main Ave., Carnegie, Pa.....	1888
WALLACE, CHAS. R., 69 Columbus Ave., Delaware, Ohio.....	1913
WALLACE, JAMES S., 12 Wellington St., E., Toronto, Ontario.....	1907
WALTER, Dr. HERBERT E., 67 Oriole Ave., Providence, R. I.....	1901
WALTERS, FRANK, 40 West Ave., Great Barrington, Mass.....	1902
WARD, FRANK H., 18 Grove Place, Rochester, N. Y.....	1908
WARD, HENRY L., 882 Hacket Ave., Milwaukee, Wis.....	1906
WARD, Mrs. MARTHA E., 25 Arlington St., Lynn, Mass.....	1909
WARD, ROY A., Biological Survey, Washington, D. C.....	1915
WARNER, EDWARD P., Concord, Mass.....	1910
WATSON, Mrs. ALEX M., 124 Hatton St., Portsmouth, Va.....	1910
WEBER, J. A., Palisades Park, N. J.....	1907
WEBSTER, Dr. GEORGE A., 419 Boylston St., Boston, Mass.....	1916
WEISEMAN, T. WALTER, 226 Beaver Road, Emsworth, Pa.....	1916
WEISER, CHARLES S., 105 Springettsbury Ave., York, Pa.....	1916
WELLMAN, GORDON B., 54 Beltran St., Malden, Mass.....	1908
WETMORE, Mrs. EDMUND, 125 E. 57th St., New York, N. Y.....	1902
WEYGANDT, Dr. CORNELIUS, 6635 Wissahickon Ave., Philadelphia, Pa.....	1907
WHALER, Mrs. J. W., 14 Murry Place, Princeton, N. J.....	1916
WHARTON, WILLIAM P., Groton, Mass.....	1907
WHITE, FRANCIS BEACH, St. Paul's School, Concord, N. H.....	1891
WHITE, GEORGE R., Dead Letter Office, Ottawa, Ontario.....	1903
WHITE, W. A., 158 Columbia Heights, Brooklyn, N. Y.....	1902
WHITTLE, CHARLES L., 20 Langdon St., Cambridge, Mass.....	1916
WIEGMANN, Dr. WILLIAM HENRY, 436 East 5th St., New York, N. Y.....	1916
WILBUR, ADDISON P., 60 Gibson St., Canandaigua, N. Y.....	1895
WILCOX, T. FERDINAND, 118 E. 54th St., New York, N. Y.....	1895
WILLARD, BERTEL G., 1619 Massachusetts Ave., Cambridge, Mass.....	1906
WILLARD, FRANK C., Farmingdale, N. Y.....	1909
WILLCOX, Prof. M. A., 63 Oakwood Road, Newtonville, Mass.....	1913
WILLIAMS, Miss BELLE, Colonia Hotel, Columbia, S. C.....	1915
WILLIAMS, ROBERT S., New York Botanical Gardens, New York, N. Y.....	1888
WILLIAMS, ROBERT W., Tallahassee, Fla.....	1900
WILLIAMSON, E. B., Bluffton, Ind.....	1900
WILLIS, Miss CLARA L., 91 Wyman St., Waban, Mass.....	1915
WILLISTON, Mrs. SAMUEL, 577 Belmont St., Belmont, Mass.....	1911
WILMOT, NELSON E., 24 New St., West Haven, Conn.....	1916
WING, DeWITT C., 5344 Dorchester Ave., Chicago, Ill.....	1913
WINSLOW, ARTHUR M., Jackson, Mich.....	1912
WISE, Miss HELEN D., 1514 13th St., N. W., Washington, D. C.....	1916

WITTER, Mrs. HENRY M., 12 Montague St., Worcester, Mass.....	1916
WOOD, GEORGE B., 129 S. 18th St., Philadelphia, Pa.....	1916
WOOD, NELSON R., Smithsonian Institution, Washington, D. C.....	1895
WOODRUFF, FRANK M., Acad. of Sciences, Lincoln Park, Chicago, Ill..	1894
WOODRUFF, LEWIS B., 14 E. 68th St., New York, N. Y.....	1886
WORCESTER, Mrs. ALFRED J., 314 Bacon St., Waltham, Mass.....	1908
WRIGHT, ALBERT H., Upland Road, Ithaca, N. Y.....	1906
WRIGHT, Miss HARRIET H., 1637 Gratiot Ave., Saginaw, W. S., Mich.	1907
WRIGHT, HORACE WINSLOW, 107 Pinckney St., Boston, Mass.....	1902
WYMAN, LUTHER E., 3927 Wisconsin St., Los Angeles, Cal.....	1907
YOUNG, JOHN P., 1510 5th Ave., Youngstown, Ohio.....	1911
ZIMMER, J. T., Dept. of Agriculture, Port Moresby, British Papua...	1908

DECEASED MEMBERS.

FELLOWS.

	<i>Date of Death</i>
ALDRICH, CHARLES.....	March 8, 1908
BAIRD, SPENCER FULLERTON.....	Aug. 19, 1887
BEAL, FOSTER ELLENBOUGH LASCELLES.....	Oct. 1, 1916
BENDIRE, CHARLES EMIL.....	Feb. 4, 1897
COOK, WELLS WOODBRIDGE.....	March 30, 1916
COUES, ELLIOTT*.....	Dec. 25, 1899
ELLIOT, DANIEL GIRAUD*.....	Dec. 22, 1915
GOSS, NATHANIEL STICKNEY.....	March 10, 1891
HOLDER, JOSEPH BASSETT.....	Feb. 28, 1888
JEFFRIES, JOHN AMORY.....	March 26, 1892
MCLWRAITH, THOMAS.....	Jan. 31, 1903
MEARNS, EDGAR ALEXANDER.....	Nov. 1, 1916
MERRILL, JAMES CUSHING.....	Oct. 27, 1902
PURDIE, HENRY AUGUSTUS.....	March 29, 1911
SENNETT, GEORGE BURRITT.....	March 18, 1900
TRUMBULL, GURDON.....	Dec. 28, 1903
WHEATON, JOHN MAYNARD.....	Jan. 28, 1887

RETIRED FELLOWS.

GILL, THEODORE NICHOLAS.....	Sept. 25, 1914
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HONORARY FELLOWS.

BLANFORD, WILLIAM THOMAS.....	June 23, 1905
BARBOZA DU BOCAGE, JOSÉ VICENTE.....	July —, 1908
BERLEPSCH, HANS VON.....	Feb. 27, 1915
BURMEISTER, KARL HERMANN KONRAD.....	May 1, 1891
CABANIS, JEAN LOUIS.....	Feb. 20, 1906
DRESSER, HENRY EELES.....	Nov. 28, 1915
GÄTKE, HEINRICH.....	Jan. 1, 1897
GIGLIOLI, ENRICO HILLYER.....	Dec. 16, 1909
GUNDLACH, JOHANNES CHRISTOPHER.....	March 17, 1896
GURNEY, JOHN HENRY.....	April 20, 1890
HARTLAUB, [KARL JOHANN] GUSTAV.....	Nov. 20, 1900

* Presidents of A. O. U.

HARVIE-BROWN, JOHN A.....	July 26, 1916
HUME, ALLAN OCTAVIAN.....	July 31, 1912
HUXLEY, THOMAS HENRY.....	June 29, 1895
KRAUS, FERDINAND.....	Sept. 15, 1890
LAWRENCE, GEORGE NEWBOLD.....	Jan. 17, 1895
MEYER, ADOLF BERNHARD.....	Feb. 5, 1911
MILNE-EDWARDS, ALPHONSE.....	April 21, 1900
NEWTON, ALFRED.....	June 7, 1907
PARKER, WILLIAM KITCHEN.....	July 3, 1890
PELZELN, AUGUST VON.....	Sept. 2, 1891
SALVIN, OSBERT.....	June 1, 1898
SAUNDERS, HOWARD.....	Oct. 20, 1907
SCHLEGEL, HERMANN.....	Jan. 17, 1884
SCLATER, PHILIP LUTLEY.....	June 27, 1913
SEEBOHM, HENRY.....	Nov. 26, 1895
SHARPE, RICHARD BOWDLER.....	Dec. 25, 1909
TACZANOWSKI, LADISLAS [CASIMIROVICH].....	Jan. 17, 1890
WALLACE, ALFRED RUSSEL.....	Nov. 7, 1913

CORRESPONDING FELLOWS.

ALTUM, [C. A. =] BERNARD.....	Feb. 1, 1900
ANDERSON, JOHN.....	Aug. 15, 1900
BALDAMUS, AUGUSTE KARL EDUARD.....	Oct. 30, 1893
BLAKISTON, THOMAS WRIGHT.....	Oct. 15, 1891
BLASIUS, [PAUL HEINRICH] RUDOLPH.....	Sept. 21, 1907
BLASIUS, WILHELM AUGUST HEINRICH.....	May 31, 1912
BOGDANOW, MODEST NIKOLAEVICH.....	March 16, 1888
BROOKS, WILLIAM EDWIN.....	Jan. 18, 1899
BRYANT, WALTER [PIERC]E.....	May 21, 1905
BULLER, WALTER LAWRY.....	July 19, 1906
BUTLER, EDWARD ARTHUR.....	Apr. 16, 1916
COLLETT, ROBERT.....	Jan. 27, 1913
COOPER, JAMES GRAHAM.....	July 19, 1902
CORDEAUX, JOHN.....	Aug. 1, 1899
DAVID, ARMAND.....	Nov. 10, 1900
DUGÈS, ALFRED.....	Jan. 7, 1910
FATIO, VICTOR.....	March 19, 1906
HAAST, JULIUS VON.....	Aug. 16, 1887
HARGITT, EDWARD.....	March 19, 1895
HAYEK, GUSTAV EDLER VON.....	Jan. 9, 1911
HERMAN, OTTO.....	Dec. 27, 1914
HOLUB, EMIL.....	Feb. 21, 1902
HOMeyer, EUGEN FERDINAND VON.....	May 31, 1889
KNUDSEN, VALDEMAR.....	Jan. 8, 1898

Deceased Members.

xxxv

KRUKENBERG, CARL FRIEDRICH WILHELM.....	Feb. 18, 1889
LAYARD, EDGAR LEOPOLD.....	Jan. 1, 1900
LEVERKÜHN, PAUL.....	Dec. 5, 1905
LILFORD, LORD (THOMAS LYTTLETON POWYS).....	June 17, 1896
MARSCHALL, AUGUST FRIEDRICH.....	Oct. 11, 1887
MALMGREN, ANDERS JOHAN.....	April 12, 1897
MIDDENDORFF, ALEXANDER THEODOROVICH.....	Jan. 28, 1894
MOSJISOVICS VON MOJSVAR, FELIX GEORG HERMANN AUGUST.....	Aug. 27, 1897
OATES, EUGENE WILLIAM.....	Nov. 16, 1911
OUSTALET, [JEAN FRÉDÉRIC] ÉMILE.....	Oct. 23, 1905
PHILIPPI, RUDOLF AMANDUS.....	July 23, 1904
PRJEVALSKY, NICOLAS MICHAELOVICH.....	Nov. 1, 1888
PRENTISS, DANIEL WEBSTER.....	Nov. 19, 1899
PRYER, HARRY JAMES STOVIN.....	Feb. 17, 1888
RADDE, GUSTAV FERDINAND RICHARD VON.....	March 15, 1903
SCHRENCK, LEOPOLD VON.....	Jan. 20, 1894
SÉLYS-LONGCHAMPS, MICHEL EDMOND DE.....	Dec. 11, 1900
SEVERTZOW, NICOLAS ALEKSYEVICH.....	Feb. 8, 1885
SHELLEY, GEORGE ERNEST.....	Nov. 29, 1910
STEVENSON, HENRY.....	Aug. 18, 1888
TRISTRAM, HENRY BAKER.....	March 8, 1906
WHARTON, HENRY THORNTON.....	Sept. —, 1895
WOODHOUSE, SAMUEL WASHINGTON.....	Oct. 23, 1904
HERMAN, OTTO.....	Dec. 27, 1914

MEMBERS.

BAGG, EGBERT.....	July 12, 1915
BROWN, HERBERT.....	May 12, 1913
CAMERON, EWEN SOMERLED.....	May 25, 1915
FANNIN, JOHN.....	June 20, 1904
HARDY, MANLY.....	Dec. 9, 1910
JUDD, SYLVESTER DWIGHT.....	Oct. 22, 1905
KNIGHT, ORA WILLIS.....	Nov. 11, 1913
PENNOCK, CHARLES JOHN (disappeared).....	May 15, 1913
RALPH, WILLIAM LEGRANGE.....	July 8, 1907
TORREY, BRADFORD.....	Oct. 7, 1912
WHITMAN, CHARLES OTIS.....	Dec. 6, 1910

ASSOCIATES.

ADAMS, CHARLES FRANCIS.....	May 20, 1893
ALLEN, CHARLES SLOVER.....	Oct. 15, 1893
ANTES, FRANK TALLANT.....	Feb. 6, 1907

ATKINS, HARMON ALBRO.....	May 19, 1885
AVERY, WILLIAM CUSHMAN.....	March 11, 1894
BAILEY, CHARLES E.....	—, 1905
BAIRD, LUCY HUNTER.....	June 19, 1913
BARLOW, CHESTER.....	Nov. 6, 1902
BAUR, GEORG [HERMANN CARL LUDWIG].....	June 25, 1898
BECKHAM, CHARLES WICKLIFFE.....	June 8, 1888
BERIER, DELAGNEL.....	Feb. 11, 1916
BILL, CHARLES.....	April 14, 1897
BIRTWELL, FRANCIS JOSEPH.....	June 28, 1901
BOARDMAN, GEORGE AUGUSTUS.....	Jan. 11, 1901
BODINE, DONALDSON.....	Aug. 26, 1915
BOLLES, FRANK.....	Jan. 10, 1894
BRACKETT, FOSTER HODGES.....	Jan. 5, 1900
BRANTLEY, WILLIAM FOREACRE.....	Sept. 9, 1914
BREESE, WILLIAM LAWRENCE.....	Dec. 7, 1888
BRENINGER, GEORGE FRANK.....	Dec. 3, 1905
BRENNAN, CHARLES F.....	Mar. 21, 1907
BROKAW, LOUIS WESTEN.....	Sept. 3, 1897
BROWN, JOHN CLIFFORD.....	Jan. 16, 1901
BROWNE, FRANCIS CHARLES.....	Jan. 9, 1900
BROWNSON, WILLIAM HENRY.....	Sept. 6, 1909
BURKE, WILLIAM BARDWELL.....	April 15, 1914
BURNETT, LEONARD ELMER.....	March 16, 1904
BUTLER, [THOMAS] JEFFERSON.....	Oct. 23, 1913
BUXBAUM, MRS. CLARA E.....	March 23, 1914
CAIRNS, JOHN SIMPSON.....	June 10, 1895
CALL, AUBREY BRENDON.....	Nov. 20, 1901
CAMPBELL, ROBERT ARGYLL.....	April —, 1897
CANFIELD, JOSEPH BUCKINGHAM.....	Feb. 18, 1904
CARLETON, CYRUS.....	Nov. 15, 1907
CARTER, EDWIN.....	Feb. 3, 1900
CARTER, ISABEL MONTIETH PADDOCK (MRS. EDGAR N. CARTER)	Sept. 15, 1907
CHADBOURNE, ETHEL RICHARDSON (MRS. ARTHUR PATTERSON CHADBOURNE).....	Oct. 4, 1908
CHARLES, FRED LEMAR.....	May 6, 1911
CLARK, JOHN NATHANIEL.....	Jan. 13, 1903
COE, WILLIAM WELLINGTON.....	April 26, 1885
COLBURN, WILLIAM WALLACE.....	Oct. 17, 1899
COLLETT, [COLLETTE] ALONZO MCGEE.....	Aug. 22, 1902
CONANT, MARTHA WILSON (MRS. THOMAS OAKES CONANT).....	Dec. 28, 1907
CONKLIN, CHARLES EDGAR.....	Sept. 8, 1916
CORNING, ERASTUS, JR.....	April 8, 1893
DAFFIN, WILLIAM H.....	April 21, 1902
DAKIN, JOHN ALLEN.....	Feb. 21, 1900

DAVIS, SUSAN LOUISE (Mrs. WALTER ROCKWOOD DAVIS) . . .	Feb. 13, 1913
DAVIS, WALTER ROCKWOOD	April 3, 1907
DEXTER, [SIMON] NEWTON	July 27, 1901
DODGE, JULIAN MONTGOMERY	Nov. 23, 1909
DYCHE, LEWIS LINDSAY	Jan. 20, 1915
ELLIOTT, SAMUEL LOWELL	Feb. 11, 1889
FAIRBANKS, FRANKLIN	April 24, 1895
FARWELL, Mrs. ELLEN SHELDON DRUMMOND	Aug. 6, 1912
FERRY, JOHN FARWELL	Feb. 11, 1910
FERRY, MARY BISSELL	March 18, 1915
FISHER, WILLIAM HUBBELL	Oct. 6, 1909
FOWLER, JOSHUA LOUNSBURY	July 11, 1899
FULLER, CHARLES ANTHONY	March 16, 1906
FULLER, TIMOTHY OTIS	Aug. 17, 1916
GESNER, ABRAHAM HERBERT	April 30, 1895
GOSS, BENJAMIN FRANKLIN	July 6, 1893
GRONBERGER, SVEN MAGNUS	April 24, 1916
HALES, HENRY TEASDEL	Nov. 6, 1913
HATCH, JESSE MAURICE	May 1, 1898
HILL, WILLIAM HENRY	Oct. 14, 1913
HINE, Mrs. JANE LOMIS	Feb. 11, 1916
HOADLEY, FREDERICK HODGES	Feb. 26, 1895
HOLMES, LaRUE KLINGLE	May 10, 1906
HOOPES, JOSIAH	Jan. 16, 1904
HOWE, FLORENCE AURELLA	July 9, 1913
HOWE, LOUISE	Sept. 13, 1912
HOWLAND, JOHN SNOWDEN	Sept. 19, 1885
INGERSOLL, JOSEPH CARLETON	Oct. 1, 1897
JENKS, JOHN WHIPPLE POTTER	Sept. 26, 1894
JEWEL, LINDSEY LOUIN	Sept. 5, 1915
JOUY, PIERRE LOUIS	March 22, 1894
KELKER, WILLIAM ANTHONY	Feb. 15, 1908
KNIGHT, WILBER CLINTON	July 28, 1903
KNOX, JOHN COWING	June 10, 1904
KOCH, AUGUST	Feb. 15, 1907
KUMLIEN, LUDWIG	Dec. 4, 1902
KUMLIEN, THURE LUDWIG THEODOR	Aug. 5, 1888
LAKE, LESLIE WALDO	Feb. 7, 1916
LATIMER, CAROLINE P.	April 19, 1916
LAWRENCE, ROBERT HOE	April 27, 1897
LEE, LESLIE ALEXANDER	May 20, 1908
LEVY, WILLIAM CHARLESWORTH	July 5, 1914
LINDEN, CHARLES	Feb. 3, 1888
LLOYD, ANDREW JAMES	June 14, 1906
LORD, WILLIAM ROGERS	Feb. 2, 1916
MABBETT, GIDEON	Aug. 15, 1890

MAITLAND, ALEXANDER.....	Oct. 25, 1907
MARBLE, CHARLES CHURCHILL.....	Sept. 10, 1900
MARCY, OLIVER.....	March 19, 1899
MARIS, WILLARD LORRAINE.....	Dec. 11, 1895
MARSDEN, HENRY WARDEN.....	Feb. 26, 1914
McEWEN, DANIEL CHURCH.....	Nov. 1, 1909
McKINLAY, JAMES.....	Nov. 30, 1899
MEAD, GEORGE SMITH.....	June 18, 1901
MINOT, HENRY DAVIS.....	Nov. 13, 1890
MORRELL, CLARENCE HENRY.....	July 15, 1902
NICHOLS, HOWARD GARDNER.....	June 23, 1896
NIMS, LEE.....	March 12, 1903
NORTHROP, JOHN ISAIAH.....	June 26, 1891
PARK, AUSTIN FORD.....	Sept. 22, 1893
PAULMIER, FREDERICK CLARK.....	March 4, 1906
POMEROY, GRACE VIRGINIA.....	May 14, 1906
POMEROY, HARRY KIRKLAND.....	Jan. 27, 1915
PUTNAM, FREDERIC WARD.....	Aug. 14, 1915
RAGSDALE, GEORGE HENRY.....	March 25, 1895
RAWLE, FRANCIS WILLIAM.....	June 12, 1911
READY, GEORGE HENRY.....	March 20, 1903
REED, CHESTER ALBERT.....	Dec. 16, 1912
RICHARDSON, JENNESS.....	June 24, 1893
ROBINS, JULIA STOCKTON (Mrs. EDWARD ROBINS).....	July 2, 1906
SAND, ISABELLA LOW.....	April 20, 1906
SELOUS, PERCY SHERBORN.....	April 7, 1900
SHANNON, WILLIAM PURDY.....	Oct. 29, 1916
SLATER, JAMES HOWE.....	Feb. 22, 1895
SLEVIN, THOMAS EDWARDS.....	Dec. 23, 1902
SMALL, EDGAR ALBERT.....	April 23, 1884
SMALL, HAROLD WESLEY.....	Mar. 12, 1912
SMITH, CLARENCE ALBERT.....	May 6, 1896
SMITH, RUTH COOK (Mrs. H. A. HAMMOND SMITH).....	Jan. 2, 1912
SNOW, FRANCIS HUNTINGTON.....	Sept. 20, 1908
SOUTHWICK, JAMES MORTIMER.....	June 3, 1904
SPAULDING, FREDERICK BENJAMIN.....	Oct. 22, 1913
STONE, WILLARD HARRISON.....	March 15, 1895
STYER, KATHARINE REBECCA (Mrs. J. J. STYER).....	January 20, 1917
SWEIGER, HELEN BRONSON (Mrs. JACOB L. SWEIGER).....	March 24, 1907
TAYLOR, ALEXANDER O'DRISCOLL.....	April 10, 1910
THOMPSON, MILLETT TAYLOR.....	Aug. 7, 1907
THORNE, PLATT MARVIN.....	March 16, 1897
THORNE, SAMUEL.....	July 4, 1915
THURBER, EUGENE CARLETON.....	Sept. 6, 1896
UPHAM, MARY CORNELIA (Mrs. WILLIAM HENRY UPHAM).....	Nov. 29, 1912
VENNOR, HENRY GEORGE.....	June 8, 1884

Deceased Members.

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WATERS, EDWARD STANLEY.....	Dec. 27, 1902
WELLES, CHARLES SALTER.....	Feb. 24, 1914
WHITE, JAMES CLARKE.....	Jan. 5, 1916
WILLARD, SAMUEL WELLS.....	May 24, 1887
WILSON, SIDNEY STEWART.....	Nov. 22, 1911
WINDLE, FRANCIS.....	February , 1917
WISTER, WILLIAM ROTCH.....	Aug. 21, 1911
WOOD, JOHN CLAIRE.....	June 16, 1916
WOOD, WILLIAM.....	Aug. 9, 1885
WOODRUFF, EDWARD SEYMOUR.....	Jan. 15, 1909
WORTHEN, CHARLES KIMBALL.....	May 27, 1909
WRIGHT, SAMUEL.....	Jan. 18, 1917
YOUNG, CURTIS CLAY.....	July 30, 1902
ZAPPY, WALTER REAVES.....	Feb. 20, 1914

